A BRIEF COMMERCIAL GEOGRAPHY

JOHN W. DAVIS
THOMAS H. HUGHES

HINDS, HAYDEN & ELDREDGE

A BRIEF COMMERCIAL GEOGRAPHY

BY

JOHN W. DAVIS

DIRECTOR OF
THE BUREAU OF ATTENDANCE AND CHILD WELFARE
DEPARTMENT OF EDUCATION

AND

THOMAS H. HUGHES

EVANDER CHILDS HIGH SCHOOL
NEW YORK CITY

1921

HINDS, HAYDEN & ELDREDGE, INC.

New York Philadelphia Chicago

U.S.-2

PREFACE

There can be no doubt of the fact, if we are to be consistent with our interpretation of geography as expressed in the preceding volume of this series, that the main feature of the geography study in the last class of the elementary school is the commercial phase. The trade of the world, including as does practically all the activities of the human race, is of a scope tremendous in its meaning. Only by a study of it can the relation of the human species to its natural environment be appreciated. In it is involved the greatest of all geographical causal relations. The student should be brought to feel the rivalry and interplay of nations in this greatest of all games, the constant struggle for a goodly and increasing portion of international commerce.

This is the keystone of the arch of geographical study, for commerce has been the motive behind all the efforts of man to conquer his environment. Why do ocean liners endeavor to cut down time in crossing the European ferry? To get men and money to Europe the more rapidly to consummate business deals — to save commercial time. Why the Panama canal? To foster commercial ventures and to make them more profitable. Why large navies? To protect commercial ventures. Whatever else is considered in the geography of this grade must be subordinated to the commercial phase. Hence in this book the political and descriptive have been made subordinate to the latter viewpoint.

An endeavor has been made, as far as is practicable in a book of so elementary a scope, to deal both with causes — a very vital point if geography is to be taught so as to make pupils exert thought — and with accomplished facts. There is no doubt as to the justification of

this last point in a book to be used by pupils whose schooling is practically concluding. There are certain facts about the trade of the world which every person should know.

The idea of the explanation of the subject in terms of physical environment has been kept in mind, so that the work of this grade may be correlated with that of the preceding term; but the influence of man and the effects of economic control in world production have been given equal importance. Nature supplies resources, but the products are due to man, urged on by economic pressure of supply and cost.

The pictures and illustrations should furnish a basis for class discussions and provide a field for thought training in interpretation. The questions and exercises appended to the chapters are designed tc promote thought on the pupil's part.


WESTERN HEMISPHERE
NORTH POLE
ASIA
GREENLAND
ALASKA
Bering Sea
ARCTIC OCEAN
Hudson Bay
NORTH AMERICA
UNITED STATES
San Francisco
Chicago
New York
TROPIC OF CANCER
HAWAII
Gulf of Mexico
Caribbean Sea
PACIFIC OCEAN
EQUATOR
Longitude East
Longitude West from Greenwich
SOUTH AMERICA
Cape San Roque
TROPIC OF CAPRICORN
Rio de Janeiro
Valparaiso
Buenos Aires
ATLANTIC OCEAN
NEW ZEALAND
ANTARCTIC CIRCLE
Cape Horn
ANTARCTIC OCEAN
SOUTH POLE


ARCTIC REGION
NORTH POLE
PACIFIC OCEAN
NORTH AMERICA
ATLANTIC OCEAN
ASIA
EUROPE
West
East


GREATEST WATER AREA
TROPIC OF CANCER
PACIFIC OCEAN
EQUATOR
TROPIC OF CAPRICORN
SOUTH POLE
SOUTH AMERICA
ATLANTIC OCEAN

ANTARCTIC REGION

GREATEST LAND MASSES

CONTENTS

CHAPTER		PAGE
I.	How Man Developed Trade and Commerce	7
II.	How Natural Conditions Affect Commerce	13
III.	How Man Controls Commerce	22
IV.	Physical and Climatic Features of the United States	34
V.	Agricultural Products of the United States and World Areas of Production	50
VI.	Animal Products of the United States and World Areas of Production	64
VII.	Mineral Products of the United States and World Areas of Production	72
VIII.	The Great Industries of the United States	82
IX.	Great American Manufactures	94
X.	Inland Transportation and Trade Routes	102
XI.	Centers of Production, Industry, and Trade	115
XII.	New York City as a Commercial Center	124
XIII.	The Importance of Alaska and our Island Possessions	134
XIV.	The United States in the World's Markets	145
XV.	Trade Relations of Canada, Mexico, and Cuba	158
XVI.	South American Commerce	176
XVII.	The Trade of Great Britain and Germany	192
XVIII.	The Countries of Northern Europe	209
XIX.	The Countries of Southern Europe	220
XX.	The Countries of Central and Eastern Europe	229
XXI.	The Commerce of Asiatic Countries	241
XXII.	Trade Relations of Africa and Australia	254
Index		271
Appendix		i

MAPS AND CHARTS

Western Hemisphere	4
Eastern Hemisphere	5
Population Map of the World	15
Winds and Rainfall of the World	19
Relief Map of the United States	36–37
Political Map of the United States	42–43
Production Areas of the United States	84–85
Railroads of the United States	104–105
New York City and Vicinity	126–127
Alaska	135
Insular Possessions of the United States	139
Commercial Map of the World	148–149
The Dominion of Canada	159
Mexico and Central America	165
The West Indies	169
South America	178
The British Isles	194
Political Map of Europe	198–199
Germany, Belgium, and the Netherlands	203
France, Spain, and Portugal	211
South Central Europe	238a
Political Map of Asia	242–243
Political Map of Africa	256–257
Australia and the Pacific Islands	264–265

GEOGRAPHY

CHAPTER I

HOW MAN DEVELOPED TRADE AND COMMERCE

Savage Life. — In studying the effects of climate on man, we have seen how widely the simple life of the savage differs from that of civilized man. A naturalist on the coast of Australia relates recently how he came across a band of "black fellows," as the natives are called, at their camp or lying-down place, for they had no huts or shelter of any kind. By promising to give them plenty of biscuit, he got them to show him the nests of a certain species of bird. With the exception of a thick coat of white clay and red and yellow ochre on their faces and chests, they wore no covering on the body. Each man carried one or two spears, which he threw at the birds flying overhead. One climbed a tree, tore off some onion-like plants and threw them down to his companions, who ate them all before the climber got down to claim his share. Along a stretch of rocky shore were many crabs which the blacks caught and ate alive. They also found shellfish, which they strung on a reed stem to hang in the sun until the animal should die, so

FIG. 1. Wild men of the Cheringani hills in Africa.

that it could be drawn out and eaten. Some bulbs, like turnips, were tied in their hair to be cooked in the future. A lizard and a six-inch-long grub were tussled for, torn into pieces, and the pieces swallowed on the spot. The nests having been found and the biscuits handed over, the savages filled themselves and lay down to sleep. They cared no more for the traveler or his biscuit.

Division of Labor. — There is one great point of difference between the condition of the savage and that of civilized man. You noted that among these Australian savages it was a case of every man for himself. The savage has little or no thought for his neighbor. He gives no aid and asks none. Every man seeks the necessaries of life for his family without help.

FIG. 2. A Tibetan woman weaving just enough cloth for her own needs.

The savage, however, is but little more than an animal. Without the aid of his fellow-man no one can secure all the food, clothing, shelter, and other things he needs to nourish his body and develop his mind. The fact that he **has** to and does draw upon his fellow-man for what he requires, and **has** to and does give something in return, is what makes him a **civilized man.**

Among civilized people many varied industries are followed and each worker devotes his attention to some one particular thing, with a view to exchanging the surplus product he cannot use for other things which he needs, and which other people can produce better than he can. This sharing of the work of the world among members of a civilized community, whereby one man does one thing alone and other men other things, is called **division of labor.**

As savage tribes begin to see the wisdom of this division, they advance toward civilization. Among the Eskimos we find the young,

vigorous men acting as hunters; the old, feeble men making kayaks or repairing the bows, arrows, and knives; the women preparing the food; the boys flaying animals. And yet all share the common food. By this division of labor two things are accomplished: each member, doing the same work all the time, turns out a better product, and at the same time prevents waste of time and material. You can notice this division of labor among the people who live on your own block; the grocer cannot make the clothes, the furniture, or the books necessary for his family, so he exchanges his goods for those of the tailor, the furniture dealer, and the stationer, who in turn need someone to supply them with groceries. This exchange of goods is called **trade** or **commerce.**

How Commerce Civilizes Man. — There was a division of labor developed not only among the members of a family, but between tribes, when some gave particular attention to grazing herds of cattle, while other tribes preferred to cultivate the soil or to fish in the sea. Then many tribes united to form nations, and still the division of the world's labor continued. Some became agricultural, some manufacturing, and others became great carrying or exchanging nations. We might go so far as to say that there is now a division of labor among the continents which will become more important as the products of various continents are exchanged more readily.

FIG. 3. An Eskimo harpooning a seal to supply food and fuel to his own family.

When you dined last night you probably made use of products from China, Brazil, Ireland, Cuba, Japan, Spain, and Jamaica. Again, Michigan, Minnesota, Texas, Florida, Nevada, Pennsylvania, probably furnished things to make your meal complete. Can you determine what these products are?

The desire to get these products from country to country as quickly

as possible has been the great agent of civilization. To-day it is only the savage groups which give nothing to their fellow-men and receive nothing in return. The exchange of products brings various peoples into communication, so that they learn one from the other. It was the desire to exchange products with distant peoples that sent the European east to the Indies. Then when the Turks cut off this rich trade, the desire to find an all-water route urged Columbus out into the strange Western waters and led Da Gama around the cape of Good Hope.

The larger number of the civilized people in the world live in the country. They are engaged in agriculture, lumbering, mining, grazing — divisions of the labor of the world which cannot be carried on in densely populated regions. To perform their part of the world's work more capably they live in permanent houses, they make use of many inventions and tools unknown to the savage, they give greater attention to their home life and the education of their children.

They also build large cities and towns, because they have found it necessary for many people to live in as large groups as possible, so that representatives of all industries may be together to aid in the division of labor and the easy exchange of products. It is the pressure of commerce and trade, then, which urges man to build great cities in which the products of the earth may be manufactured or changed in some way before they are used. Practically every occupation except hunting can be found in a large city like New York.

Barter and Money. — The white trader in Africa or Australia holds a cheap rifle worth a few dollars and waits for the native to put in front of him several hundred dollars worth of skins in exchange for it. Though this may seem unfair to us, goods of equal value to both parties are being exchanged; and in simple bargains like this commerce had its beginnings. Where one article is exchanged directly for another, the operation is called **barter.** The farmer who exchanges his butter and eggs at the country store for matches, kerosene, and shoes, the boy who gives a handful of marbles for a knife, the miner who exchanges a nugget of gold for a month's provisions all make use of **barter.**

You can easily realize that this simple form of commerce could not be employed in a large city. Imagine your grocer taking in goods of all descriptions in exchange for his wares. Again, commerce forced

man to become more civilized by making him see that a common medium of exchange was needed — something which we willingly receive in payment for the goods or labor we sell and with which we may buy whatever its value will purchase. Anything which is used in this way as a medium of exchange is **money.** The thing used must be easily preserved and transported and readily accepted by every one. In Abyssinia small blocks of salt at one time were used as money, and in parts of Africa and India cowrie shells are still used. Hides in California, tobacco in Maryland, and fish in Nova Scotia were once used as money. You can understand the great advantages of using gold, silver, and copper as a medium of exchange, because their values are always about the same throughout the world. Paper money is used for convenience in place of coins, but bank bills simply represent coin and have value only as long as the government or the bank issuing them can redeem them in coin. In commerce to-day, therefore, a man exchanges for money the products he has to sell — such money as bank checks or drafts — and with the money he buys other things, according to his needs.

FIG. 4. An Alaskan Indian skinning a whale.

Domestic and Foreign Commerce. — No housewife would think of going blocks away from home to purchase goods that she can secure just as cheaply on her own block. For the same reason no nation imports or buys goods that she can produce satisfactorily within her own borders. First of all she uses her own products. Although the United States has to buy every year $100,000,000 worth or more of sugar, she consumes every bit of the 800,000 or more tons of cane sugar and beet sugar produced in Louisiana, Michigan, Colorado, and California. This home trade of a people, always many times larger than its foreign trade, is called **domestic commerce.**

On the other hand, the supplies that a nation requires which cannot

be produced at home can be secured only by exchanging surplus products with foreign countries. England last year absorbed four million bales of cotton, each weighing five hundred pounds. Since she can produce no cotton, all this had to be purchased from foreign countries. The United States buys annually $120,000,000 worth of coffee from outside. Foreign commerce begins when nations cannot supply their own needs and are forced to buy from their neighbors. Every part of the world is dependent upon other parts for many of the things it needs, and this exchange of surplus products is called **foreign commerce.**

It is necessary to study now why some parts of the earth are of greater commercial importance than others. We are to examine the forces which regulate the commercial development of various regions.

REVIEW QUESTIONS. — (1) Mention as many needs of a savage as you can think of. Then contrast these with the needs of a civilized man. (2) How can the savage satisfy his needs? How can a civilized man? (3) Write definitions of **division of labor; barter; money; trade; domestic commerce; foreign commerce.** (4) Explain how division of labor is practiced in a large department store. In a school building. (5) In what ways have you made use of barter? (6) The leading foods we import are coffee, sugar, tea, cocoa, fruits, and nuts. Explain why these should hold so important a place in our foreign commerce.

CHAPTER II

HOW NATURAL CONDITIONS AFFECT COMMERCE

The Earth as the Source of our Wealth. — Everything that man has comes from the earth. Our own bodies come from Mother Earth, are always a part of her, and when we die she takes us back again into her bosom, and our substance may issue forth again in some new form. No part of the earth is ever destroyed or wasted. Not only do all foodstuffs come from the earth, but everything that we call wealth is lent to us by her for our use.

In his development of commerce, then, man is limited to those resources which the earth furnishes him. Manufacturing industries requiring power rather than fertile soil flourish in regions which can supply fuel or water power. The miner needs only minerals and can disregard soil, climate, and water power. On the other hand, the farmer, not so much interested in water power, fuel, or minerals, must look out for level, fertile land, a suitable climate, and above all an active market fairly near him, and means of getting his crops to it quickly.

We have learned, in a preceding volume, that man in his spread over the surface of the earth is restricted by climatic conditions and natural barriers; and we are to learn that the spread of commerce is similarly restricted.

Although there are about 55 million square miles of land surface on the earth, little more than half of this is suitable for the home of man. Where great mountain ranges rise to heights at which few food plants can be grown; where vast sand deserts spread out, man cannot find subsistence. On the wide tundra regions of the continents only a handful of savages can survive; in the sunless depths of the equatorial forests the wild inhabitants are ignorant of the world without.

Man can dwell in large numbers in those regions only where his food supply is abundant and easily obtained. He alone of all animals

can live away from the sources of his food supply, because he alone is able to transport what he needs to any region he wishes to inhabit. Nevertheless some great natural conditions are insurmountable.

Surface Features. — Mountain ranges have always been great obstacles to communication and commerce. The steep slopes are apt to be destitute of soil, and the valleys are difficult of access, so that mountainous countries are generally sparsely settled regions, except in the valleys where man will settle because of the food-producing power

FIG. 5. A region in which man cannot exist under normal conditions.

of the land. Mountain passes like those across the Alps, the Himalayas, and the Rockies become very important in the commercial relations of regions separated by the ranges.

The river and river valley are of wide importance to commerce. The valley is generally a region of great fertility, and its naturally leveled and graded surface offers a route to the railroad, while the stream is a source of water power and may be a free and inexpensive means of transportation.

Plateaus generally produce an abundance of grass, so that cattle growing becomes an important industry in such regions. Often, how-

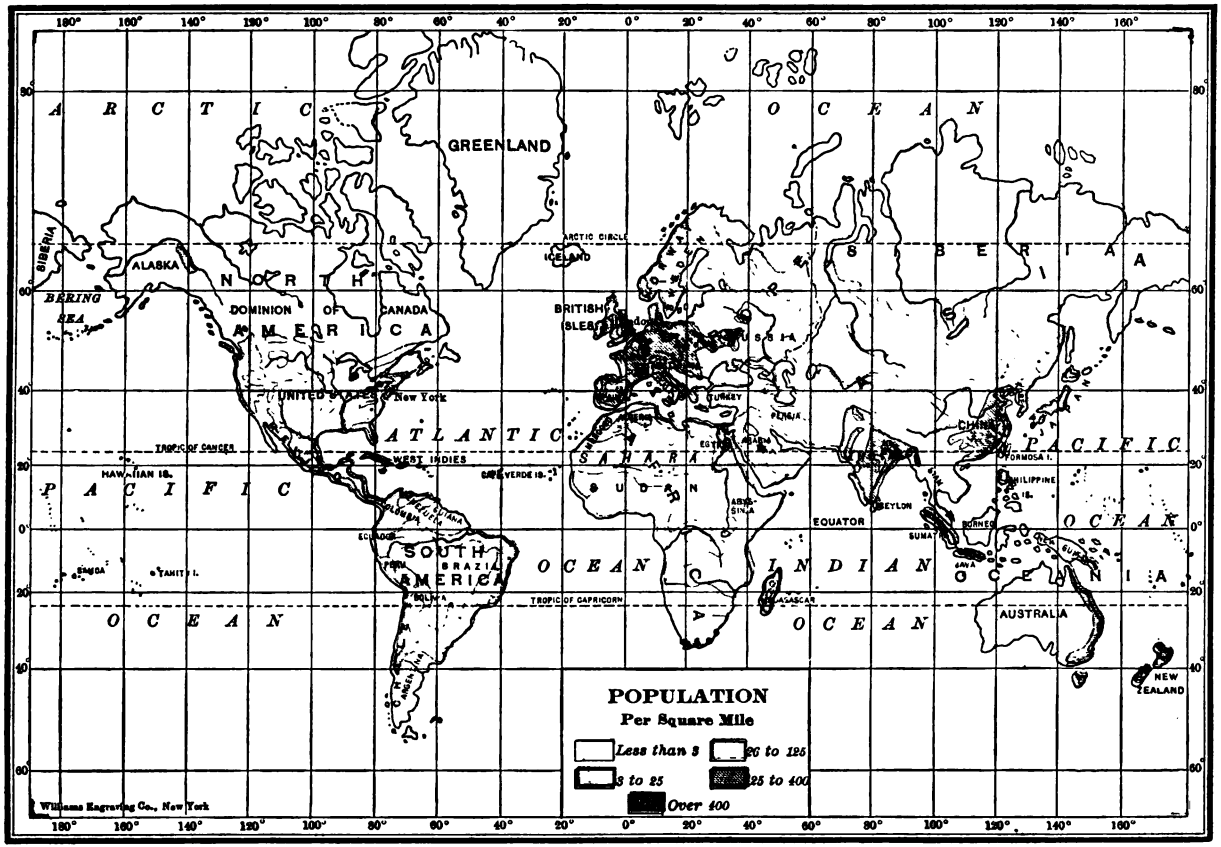


FIG. 6. A map showing the density of population of the world.

ever, they are deficient in the amount of rainfall necessary to produce an abundance of the grains. About 90 per cent of the world's population dwells in the lowland plains. On account of their fertility and the absence of obstacles to commerce they are of the highest importance to life and its activities. *Figure 6* shows us that coast plains and lowlands adjacent to good harbors, as in the United States, Europe, and China, are the most thickly populated regions of the world.

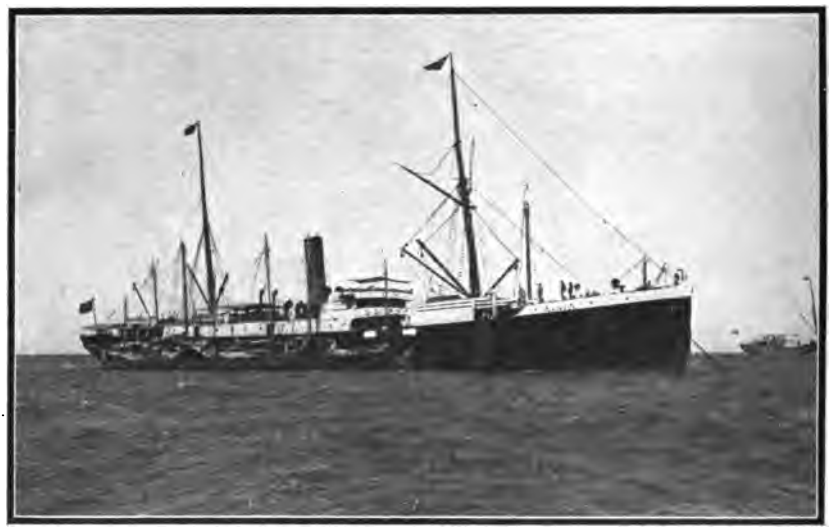


FIG. 7. A steamer forced to anchor offshore and unload its cargo with the help of small boats, owing to the lack of a good harbor.

The presence of good harbors has a great deal to do with the commercial importance of a region. The many drowned valleys along the North Atlantic coast of Europe and America form harbors which produce the two greatest centers of commerce in the world. As in South America, they determine the location of the great cities of a continent. Countries like Bolivia and Switzerland, shut off from the sea, are more limited in their influence than a country like Holland, which has extended its commercial activities to many parts of the earth by means of ready access to the sea.

Agriculture, without a reasonably fertile soil, is impossible; and

without agriculture there cannot be extensive commerce. We usually apply the term **soil** to the loose earth on the surface of the land. The soil averages from six to twelve inches deep. The greater part is formed by the breaking up of rock and the decay of vegetable and animal substance, like leaves, roots, and the bodies of dead animals. You have learned that weathering and erosion are always at work wearing down the raised portions of the earth's surface. Soils are **sandy,**

FIG. 8. Man seeks the level ground and the shelter of a mountain range for his home. The mountain range also hinders commerce.

loamy, limy, and **clayey,** according to their composition. A loamy soil is most suitable for cultivation, and the most productive soils are found in river basins, on the low slopes of hills, among the foothills of mountain ranges, in the beds of lakes, and on the great plains of the earth.

How Climate Controls Commerce. — Before man can live in a region it must produce either food products or something that may be exchanged for food products. Since the growth of food products is governed even more by conditions of climate than by surface irregularities, climate is the more important factor. **Temperature** and **moisture** are the two leading factors of climate by which it exerts its control. The northern part of North America is too cold to produce

any great amount of food products, and it is therefore sparsely settled. Parts of Africa, Asia, and North America lack sufficient rainfall; while the Amazon valley has a rainfall too copious for the great food products.

We have studied how the inclination of the earth's axis, and the fact that it is parallel to itself at all times of the year as the planet travels around the sun, produce the climatic zones. We have seen the effect of the excessive heat and moisture on the plants, the animals, and the men of the torrid zone. In the polar regions, which lack sufficient heat and light, the great food products cannot grow, the animal life is sparse, and the men are little more than savages.

The temperate zones, with the alternation of summer and winter, furnish the happy medium between the two extremes of climate. Here the winters are not too cold nor the summers too warm. In these belts the most useful food-producing plants grow and the domesticated animals can increase. Man must put forth some effort to secure what he needs. In these belts, in the middle latitudes of North America, Europe, eastern Asia, and South America, we shall find the most progressive, commercially, and the most highly civilized peoples of the world.

Rainfall and its Effects. — There is probably no spot on the earth's surface where it never rains or snows. Rainfall in different regions over the earth varies from 1 inch to more than 400 inches per year. Less than 10 inches a year in any region often means a desert or tundra, and of course prevents the growth of grains or grasses. At least 20 inches annual rainfall is generally necessary for forests and for agriculture without irrigation. The lands most favorable for human occupation in the production of food-producing plants have from 20 to 60 or 80 inches per year. Observe the regions colored for moderately heavy rains in *Figure 9*.

Excessive rainfall (that is, more than 100 inches annually) produces heavily covered forest regions which are always deficient in food-producing plants. Both regions, of excessive and of scanty rainfall, are apt to be sparsely peopled and of little commercial importance.

The distribution of rain with respect to the season in which it falls is quite as important as its distribution with respect to quantity. Even a small amount of rain falling during the growing season is of more value for grass and crops than a large amount falling in the au-

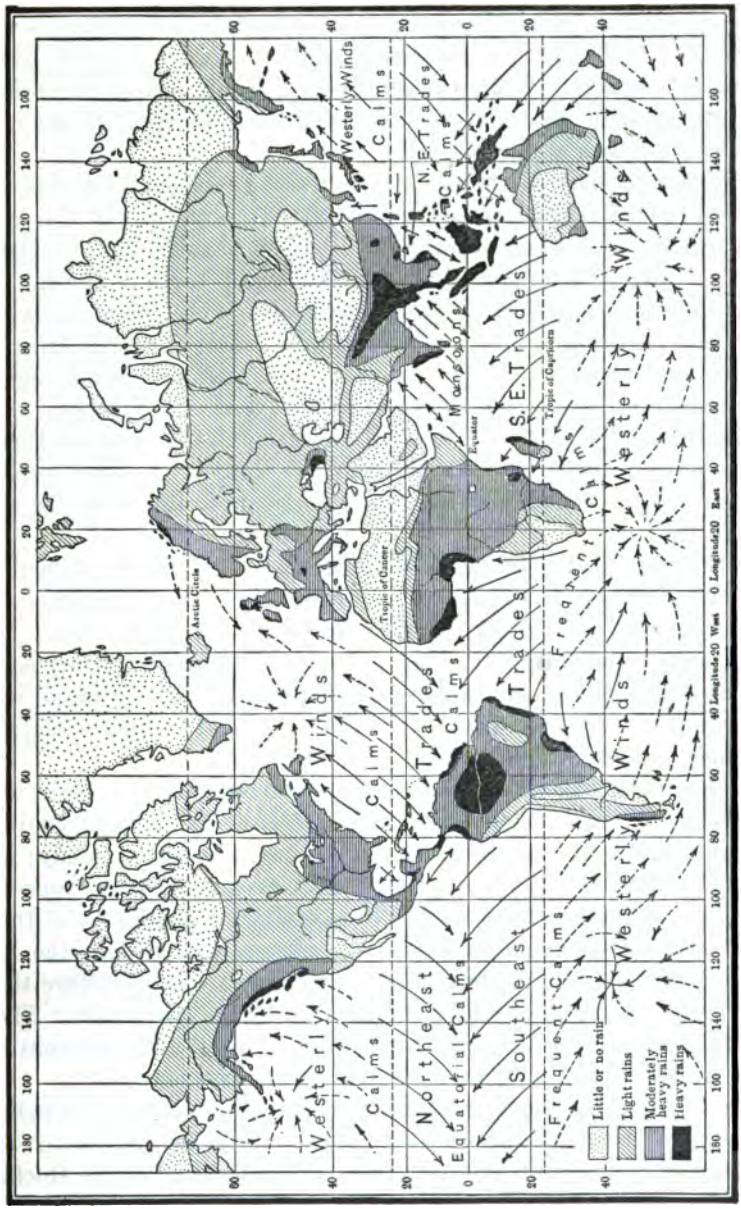


Fig. 9. Chart showing the direction of the winds and the amount of rainfall in the different parts of the earth.

tumn and winter. A good crop of corn has been raised in Kansas with a rainfall of only eight inches for the year, but most of it fell in spring and early summer. Winter rains supply ground water, fill springs, wells, and streams, and soak the lower soil levels from which the trees draw most of their water supply.

The map (*Figure 9*) shows us that, leaving out small patches, the principal rainfall regions extend south and north and that in the equatorial regions as a whole the rainfall is much heavier than in higher latitudes. We also note that the highlands stop most of the rain on their windward side; that in the temperate zones the prevailing winds from the west bring ample rains to the west coasts of North America, Europe, and southern South America; and that the polar regions have little rain because the air is too cold to carry much vapor.

About half of all the land receives too little rainfall to support more than a scanty population. Only about one third of the land receives between 20 and 60 inches of rain, the amount most favorable for civilized communities.

How Man Tries to Modify Climate. — One of the difficulties encountered in the developing of new countries is that very often the climate is not just the sort needed for successful agriculture. The most common difficulty is usually too scanty a rainfall. Many countries have droughts so protracted that, if the tiny annual rainfall were just an inch or two less, to cultivate the soil would be impossible, and the whole country would become a desert.

It is in cases like these that man, the climate maker, steps in with a remedy. Where lack of rain is the trouble the government's botanical or forestry expert is usually asked to prescribe that remedy; and he says, "Plant trees." For, strange as it may seem, trees cause the rainfall to increase. They do this in two ways. The leaves of trees, owing to their chemical make-up, are always cooler than the surrounding atmosphere; so they help to precipitate what moisture there is in the air, much as a cold mountain top brings down rain. Then, too, the roots help to keep the moisture in the soil after the rain has fallen, instead of letting it be sucked up by the hot sun.

The eucalyptus, or gum tree, is the great weapon of the rain maker. Recently the Central Pacific Railway, which, on its way from New York to San Francisco traverses a huge, flat desert east of the Rockies,

has had gum trees planted for hundreds of miles along the line — to lessen droughts!

The planting of trees by the climate maker is done for other purposes. Trees make a climate milder and shelter the exposed regions. Spain has for centuries recklessly used up its great forests till it is now almost bare, with the result that its climate has become very extreme — Spain being nowadays scorchingly hot in the summer, like the Sahara, and very cold in winter.

In many other ways man, not content to take the earth as nature gives it to him, strives constantly to change it, so as to permit of greater commercial development. We now have to study some of the ways in which man tries to fit the earth to his needs.

After a long period in the life of a nation each particular industry settles down in the region best adapted to it by natural conditions. Man in this regard must bow to nature, but he becomes supreme again because of his skill in carrying the product from the place where nature permits its growth to other parts of the world where he can exchange it for the various products he requires. Thus apples grown in Washington and Alberta are peddled in the streets of Dublin, and matches used in New York City are made in Norway from the wood of trees grown in Oregon. The great problem, then, becomes one of exchanging the products, and this problem we shall take up in the next chapter.

REVIEW QUESTIONS. — (1) Why do men gather in great cities? (2) Why are all the densely populated areas of South America in *Figure 6* near the coast? (3) Account for the population of Australia (*Figure 6*). (4) Upon what does the population of any region depend? (5) Why do men live near rivers? (6) Make a drawing of a favorable and an unfavorable coast line. (7) Find instances in *Figure 6* where mountain, desert, and water barriers restrict population to certain regions. Name these barriers. (8) What zones are most favorable to commercial development and for what reasons? (9) What conditions in the tropical zones are unfavorable to commerce? (10) Write statements showing how the climate of Cuba, Iceland, Siberia, Brazil, Alberta, and Argentina affects the life of the inhabitants of each. (11) Account for the following rainy regions: Central Africa, northern India, Amazon valley, southern Chile, the Canal zone. (12) Account for the dryness of the Sahara desert, Argentine pampas, South Africa, and central China. (13) Why are the interiors of North America and central Eurasia similar as regards rainfall? (14) What do you understand by a rainfall of 40 inches?

CHAPTER III

HOW MAN CONTROLS COMMERCE

The Conquest of Environment. — Civilized man, and especially the members of the races living in the north and south temperate belts, struggles constantly to change the earth as nature gives it to him in order to bring about its greater commercial development. He is not content, like the animal and the savage, to accept the conditions of his surroundings placidly. The need of food, shelter, and clothing is the great spur that urges him on, resulting in commerce, which is the exchange of commodities. We must always bear in mind that when man is civilized he draws on the rest of the world for what he does not produce and gives his surplus products to the rest of the world in return. Commerce tends to spread civilization throughout the world. We are now to examine some of the ways by which man tries to control nature and develop commerce.

Irrigation. — We have seen how closely the spread of men and animals depends on the production of food-bearing plants. Man is never content to endure the results of scanty rainfall in desert regions, but strives to accomplish the artificial watering of crops. In many regions he has done this by holding back the water that would otherwise run off the land, so as to form large reservoirs, and then feeding it out to the dry earth as needed. This watering of the land, either with the water thus stored up or with water diverted from rivers or pumped from deep wells, is known as **irrigation.** The commercial results of irrigation are seen everywhere from Patagonia to Alberta, from Spain to Indo-China. Regions that would otherwise still be deserts have become fertile garden spots.

At Aswan, in Egypt, an enormous dam has been constructed across the Nile, causing a rise of 65 feet in the level. When water is badly needed in lower Egypt for the valuable cotton crop, canals distribute it. The Nile is also dammed at Cairo, Siut, and other places; no

other river is so thoroughly under man's control. In India the irrigating systems insure regular and larger crops from 25 million acres. In the western United States water is obtained from mountain streams and led into great canal systems which supply widely separated farms and orchards. Irrigation companies have been organized and farmers pay them for the privilege of using the water they supply, as we pay for gas. Land benefited in this way has increased often 400 times in value, two and three crops a year being raised instead of one; cities have sprung up and a new rush of settlers has set in. Washington,

FIG. 10. The great Aswan Dam in Egypt.

Oregon, Arizona, California, Wyoming, and Colorado are profiting greatly from these efforts of man to overcome the effects of climate. In 1910 about 14,000,000 acres of land had been irrigated out of a total of over 1,000,000,000 acres constituting the arid regions.

Communication. — The development of commerce has made necessary quicker communication between different parts of the world. Man exerts a great control over commerce by the various modes of communication he has established. The international postal systems, the telegraph, the telephone, and the ocean cables are the results of man's efforts to demolish in the interests of commerce the time and space barriers between groups of men. The cotton grower in Mis-

sissippi to-night knows the price cotton brought this morning in the exchanges at Liverpool and London. Merchants in Chicago receive every morning mail orders for ready-made goods from farmers throughout the West, amounting to hundreds of thousands of dollars. By means of the telephone a manager in St. Louis can receive reports from his salesman 1,000 miles away. The most isolated parts of the earth are kept in touch with the busy centers, and ships at sea are in communication with land through wireless telegraphy. A wireless message circles the earth in 12 minutes.

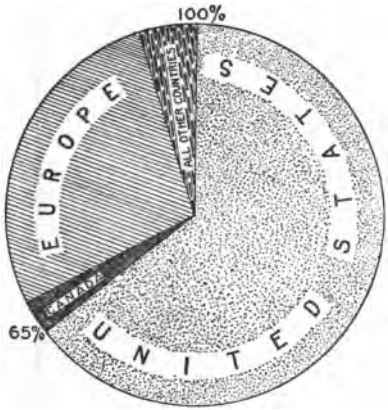


FIG. 11. Of every 100 telephones in use, the United States possesses 65. There are 14,000,000 in the world.

Transportation. — We have seen in the preceding chapter that while man is greatly limited by natural conditions of the earth's surface and by climate, he endeavors to overcome these checks upon his commercial progress by his ingenuity in exchanging products of various parts of the world. As he pursues the idea of division of labor and makes use of all natural resources, such as fertility of soil and the production of lumber, iron, coal, and copper, the problem of carrying and exchanging the products becomes more and more important. New York with her thousands of factories must depend largely upon Pennsylvania for coal and iron, Chicago for beef, the Middle West for corn and flour, and the neighboring states for dairy products to feed her hordes of workers.

Transportation by Water. — As countries take up their share of the division of labor of the world and offer more and more products for exchange, foreign commerce grows to a greater volume and the burden of transportation is put upon the "world-end" steamers and sailing vessels. The ocean routes form the most available and economical means of transportation. The constant problem of carrying products in the greatest quantity and in the shortest time is the one by which commerce urges man on to greater achievements in the way

of transportation; and, on the other hand, man, by the ways in which he meets this problem, exerts his control over commercial development.

Ocean steamers are built to-day in two types. The **freighter** and the **tramp** steamer are moderate in speed, but capable of carrying very great cargoes. A freighter of large capacity will carry at one trip, and at very low cost relatively, the contents of eight miles of freight cars — in all about 2,500 cars or 60 trains. The liner, a mail

FIG. 12. Broad beamed freighters, the great carriers of ocean commerce.

and passenger vessel, with triple-expansion engines and quadruple screws, burning sometimes 1,000 tons of coal on a full day's run, will cross the Atlantic in four and one half days to the freighter's ten days.

Sailing vessels also ply the oceans, carrying their share of the world's commerce where speed is not an object and the goods are not perishable. There are, however, plying the waters of the world, three steamers to every sailing vessel. Half the ocean commerce of the world is carried on between Europe and North America, one eighth between

Europe and the Orient and Australia by the Suez route, and one eighth between Europe and Africa.

Transportation by water is cheaper than by land. Thus the great rivers connecting coast with interior have always been the natural highways of inland commerce. The St. Lawrence river, with its connecting lakes and canals, furnishes the greatest inland waterway of the world. The great possibilities of the Amazon and the Kongo are as yet little utilized. By slow improvement the Mississippi is regaining the great trade she once maintained. The large rivers of Europe, like the Rhine, the Elbe, the Danube, the Dnieper, and the Don, have been highways of commerce from the earliest times. Ocean freighters steam up the Amazon for over 1,000 miles from its mouth, while the La Plata system permits light vessels to ascend a distance of 1,500 miles. The rivers of Asia, with their level and fertile valleys, have each considerable local commerce, while the abrupt slopes and rapids of most of the African rivers render them unsuitable for navigation.

Canals. — In the early development of many countries, lack of roads led to the use of the waterways for trade and travel. Even after roads had been provided, water transportation was cheaper and traffic continued to use waterways. Canals form a very important part of inland water navigation. They are used to shorten distances between points or to enable boats to pass around an obstruction like a falls or rapids in a river. A horse that can draw one ton in a cart on a good road can draw 30 or 40 tons in a canal boat.

The Panama canal, the most important in the world, saves 10,000 miles in a ship's voyage from New York to San Francisco, cutting off the waste of time and expense of the trip around Cape Horn. By using it a shipper saves 8,000 miles from New York to Yokohama and 5,000 miles to Valparaiso; 6,500 miles are saved in steaming from San Francisco to Liverpool, and 6,000 in steaming to Genoa. The tolls in sending an average size freighter through the short passage will approximate $6,000. The Kiel canal in Germany was built to permit ships to pass between the Baltic and North seas without going around Denmark; the Manchester ship canal in England allows ocean-going freighters from the United States to pass along its 35 miles in three hours and discharge their cargoes at the doors of the cotton mills. In Holland canals are more common than roads. Five thousand vessels a

year pass through the Suez canal, saving over 4,000 miles in going to ports in India, China, and Japan. Germany, Canada, China, and the United States have many canals. *Figure 13* shows the canal across Cape Cod, dug to shorten the water trip between New York and Boston and to do away with the voyage among the dangerous shoals south

FIG. 13. The Cape Cod canal, looking east.

and east of Cape Cod. The Antwerp and Liege canal will be 84 miles in length, and the Danube and Adriatic canal 319 miles long.

Transportation by Rail. — In spite of the fact that water transportation is much cheaper, most of the goods of the United States and the countries of western Europe is carried by the railways. In big cities like London, New York, Boston, and Paris, the enormous amount of perishable food required for daily consumption must be delivered on time. The railroad is generally swift and prompt.

Always with the purpose of developing commerce and exchanging goods, 700,000 miles of track extend everywhere over the earth's surface. Man fights and conquers natural barriers everywhere in order to drive the twin rails farther. Wonderful tunnels, like the

Simplon and the St. Gothard in the Alps, pierce mountain ranges in Asia, South and North America. Eight transcontinental roads crossing North America meet, at Pacific coast ports, steamers carrying cargoes of Chinese and Japanese products.

One powerful locomotive can haul 5,000 tons of freight at a speed of 25 miles an hour. Forty-eight hundred tons of coal are drawn in a long string of cars by one engine. Some express trains cover the distance between New York and Chicago in 18 hours.

A **trunk system** is a consolidation of smaller roads, the various branches of which extend into coal, grain, iron, cattle, timber, and

FIG. 14. The largest and most powerful freight locomotive in the world.

tobacco regions. It feeds the products of these areas to the manufacturing and shipping centers along the line and on the coast. Most of the trunk lines, therefore, extend east and west. The Trans-Siberian Railway, connecting Vladivostok with Petrograd, is an example of a foreign trunk line. The Cape-to-Cairo line in Africa and a pan-American line connecting Canada with Argentina, which will be built sooner or later, will be examples of trunk systems extending north and south.

A great American mode of rail transportation is the electric car. The tracks of these trolley lines branch out for hundreds of miles from our cities, supplying prompt, cheap, and frequent service to passengers, and often acting as carriers of perishable freight such as fruit and dairy products. The light cars and motors can run in uneven sections

where it would be impracticable if not impossible to extend a railroad line. A traveler can journey from Albany to Chicago or from New York to Portland, Me., by these electric railroads. Many steam railroads are now engaged in electrifying their tracks within and near city limits.

Other Modes of Transportation. — The simplest form of transportation is porterage, in which loads are carried by men's hands and arms, or on their heads. This mode is used among savage people, in tropical forests, and in mountainous countries. In Central Africa about 30 negroes are required to carry a ton 25 miles a day. The cost of transportation from the Guinea coast to Lake Chad, about 600

FIG. 15. Transportation in the wild African interior.

miles, is $380 a ton. By railroads the cost of transportation over a like distance may be only ten cents a ton.

Pack animals are a great improvement on the human porter. Of all animals used, the dog, the ass, the mule, the horse, the ox, the elephant, the reindeer, the llama, and the yak, probably the camel is the most efficient, carrying a load up to 1,000 pounds. Caravans of 12,000 camels carrying goods worth $800,000 cross the Sahara, consuming 20 months for the round trip.

Certain products, like petroleum and gas, are transported from section to section through great pipe lines that run along the surface or underground. Many of these cross the Middle and South Atlantic states, Texas, and California, as well as Germany, Russia, and Mexico, to carry oil from the wells to refineries on the coasts.

The Forms of Government.—The development of commerce, too, is controlled largely by the kind of government under which man lives. Any kind of government, you can see, is a form of division of labor. Government has arisen because there are many things which every one in a community needs, such as a system of police protection, the maintenance of healthful conditions, fire protection, the exchange of mail, but which a few people can attend to better and more cheaply for the community as a whole. Then again, commerce cannot thrive unless people regard the rights of their neighbors, and unless people who will not do as they should are made to do so. Men will not produce very much if they are not to enjoy the results of their labors.

All forms of government have had their origin in the relations subsisting between the parent and children in the smallest group within a tribe, which we call a **family.** Here the parent must establish and enforce certain rules in order that all members of the group may live in comfort and happiness. A group of families made up the **tribe,** which, when a place of permanent habitation was settled upon, became the inhabitants of a village. Here a headman or chief took the leadership, made the rules, and settled disputes among members. He corresponds to the mayor of a city or the governor of a state.

A great union of tribes or villages, cities, and states makes up a nation, which we may think of as a very large family. When all the officers of a government are nominated, discussed, and elected by the people of the nation directly, the mode of government is called a **democracy** (people ruling). In a great nation like our own it would be quite impossible to have every citizen elect his ruler directly and have a voice directly in the making of the laws. So that, when the officers are chosen as in our country, in France, and in Portugal, by **representatives** elected by the people, the government is called a **republic.** In the United States we use both forms, so that we live under a **democratic republic.**

Tribes ruled by chiefs, who have the power of life and death, who hold office for life, and who are generally succeeded by their oldest son, are common in Africa and parts of Asia. This mode of government is called an **absolute monarchy** (one person ruling). In larger nations this ruler may be called a king, queen, emperor, empress, ameer, czar, sultan, shah, or mikado. Abyssinia, Afghanistan, Morocco, and

Siam furnish illustrations of this type of government. The people are not, as a rule, as well educated or as happy under this form as under the republic; and the country will not be so important commercially, the national resources will not be so profitably developed. When the people are oppressed by a pitiless police system or tax office, there is little incentive to work hard and to try to acquire wealth.

Sometimes the people living unhappily under the monarchical form have risen up and wrested a guarantee of fair treatment from their

FIG. 16. A road-grading machine in use in the United States.

rulers; have limited the powers of the sovereign by making him promise not to do certain unjust things. This form of government is called **a limited monarchy** or a **constitutional monarchy.** Great Britain, Italy, and Japan are examples of this type.

People thrive best and commerce is greatest under the **republic.** This, however, is the most difficult of all forms of government to carry on, because it depends upon the concerted good will and the honesty, patriotism, and intelligence of many citizens.

Good governments encourage industry and trade by protecting

their citizens from marauders. They help foreign and domestic commerce by improving rivers, waterways, and roads, and by collecting and giving out helpful information of value to farmers and manufacturers. They preserve forests and animals, stock rivers with fish, and provide for irrigation.

The influence of weather conditions upon commerce is so important that all good governments have established **weather bureaus.** These send out daily maps and forecasts warning farmers, shippers, and manufacturers of coming storms, frosts, blizzards, and temperature changes. Millions of dollars worth of property are saved every year by these warnings in the United States alone. By advance notice of one cold wave, $3,000,000 worth of perishable products that would have been destroyed was saved.

National governments that work for the betterment of their people, and therefore for greater commercial development, aid navigation by removing obstructions to the entrances to harbors, constructing piers, building and maintaining lighthouses, and placing buoys to mark dangerous shoals or to guide vessels through the proper channels when entering or leaving harbors. They also establish rules for the management of ocean-going vessels, so that no one shall trespass upon the rights of another or place other vessels in danger by running at high speed in rivers and dangerous channels. All large vessels are taken into and out of port by pilots who, having thorough acquaintance with the harbor, are able to guide the ships safely through the most tortuous channels. Governments establish laws and regulations for the high seas, providing for the safety of passengers and crew by insisting upon proper equipment for life saving in case of accident. They look out for the care of their sailors in foreign ports and regulate their duties and privileges. They maintain consular agents in almost every port of the world to report back to their manufacturers and exporters on the conditions of trade in the country in which they are stationed.

It becomes our work now to trace out this division of labor among the great nations of the earth. We are to see how each nation does the work it is best fitted to do by its physical environment and climatic features. We are to learn what each one gives to the other members and what it takes in return. The one nation best suited to study in detail is our own United States.

QUESTIONS AND EXERCISES. — (1) Mention ways in which man has changed natural conditions in New York City. (2) Determine the cause behind each one of these cnanges. (3) Consulting the rainfall map and the population map, find places on the earth where irrigation could be employed. (4) Why are rugged and mountainous countries generally sparsely settled? (5) Mention the great modes of communication employed in New York City. (6) Mention the great modes of transportation of the world in order of speed, in order of cheapness. (7) What modes would you be likely to find in South America? In Greenland? (8) Explain why a sailing vessel can be run more cheaply than a steam vessel. (9) Mention exports that sailing vessels can carry at lower costs than can steamships. (10) What is the largest item of expense in a steam vessel? (11) In what ways does good government help to develop trade? (12) Mention ways in which your government is aiding commercial development. (13) Write definitions of **climate, irrigation, transportation, trunk line, freighter, liner.** (14) Explain the difference between a republic and a constitutional monarchy.

CHAPTER IV

PHYSICAL AND CLIMATIC FEATURES OF THE UNITED STATES

Importance of the United States. — Although our country is surpassed in area by the British Empire, by Russia, and by the Chinese and Brazilian republics, it excels them all in geographical and commercial advantages of position. Its location is very advantageous, being almost wholly in the warmer half of the north temperate zone. Its wide stretches of fertile soil and its vast mineral resources make it admirably fitted to become the seat of one of the greatest nations of the earth. At present it is the largest habitable country. In location, climate, surface, and natural wealth the United States is favored above most countries. It suffers neither from extreme heat nor extreme cold; the rainfall is nowhere excessive, and irrigation is rapidly healing the arid scars due to scanty rain. Neither great deserts nor impassable mountain chains interfere with transportation. At the present its natural resources are more productive and its manufacturing interests greater than those of any other country. There are few other countries so well fitted to support their population without dependence on the products of other regions.

Every one of the great occupations of men in which there occurs the division of labor — agriculture, mining, fishing, lumbering, grazing, and manufacturing — is practiced by the United States of America.

Location and Area. — Its average extent from north to south is about 22° of latitude, or 1,200 miles; from east to west the average breadth is about 2,500 miles, thus giving an approximate area of 3,000,000 square miles. Including Alaska and its island possessions, the total area which our country controls is about 3,750,000 square miles, being nearly equal to that of all Europe.

Great Natural Divisions. — As the United States stretches entirely across the continent, it has four well-marked physical divisions:

(1) the **Atlantic Coastal plain,** including the Gulf Coastal plain; (2) the **Appalachian highlands,** including the Allegheny highlands; (3) the **Central plain,** including the Great Plains; and (4) the **Western highlands,** including the Pacific coast ranges.

The Atlantic Coastal Plain. — You will observe in *Figure 17* that a low coast plain borders the Atlantic seaboard of the United States throughout most of its extent. Along the northeastern coast the plain is very narrow, while south of New York bay it has a width in some places, as in Georgia, of more than 200 miles. The surface is nearly level everywhere, sloping gently toward the southeast. The existence of the Atlantic Coast plain has had a marked effect on the commercial development of the country. The sinking or drowning of the northern part has made a very much indented coast line, forming the best of harbors. These drowned valleys are found from Maine to Chesapeake bay. Locate on the map Penobscot bay, Frenchman bay, Machias bay, Sheepscot and Casco bays, which form excellent harbors. Massachusetts, Cape Cod, New York, Delaware, and Chesapeake bays, with Long Island sound, are also great natural aids to commercial development. South of New York good harbors are very few.

The New England section, extending from Maine to Long Island, is a plateau region, the surface sloping abruptly and furnishing abundant water power. The soil, fertile in many sections and quite barren in others, is hard to till. This fact led to the development of factories, which made use of the excellent water power afforded by the clear, rapid rivers.

In the middle portion of the Atlantic Coastal plain the mountains are farther inland, the slope is more gradual, and the land more nearly level. In the southern section the soil is much more fertile and farming is an active occupation. The rivers are sluggish but deep and navigable in their lower portions. On the line where they descend from the higher levels to the flat lowlands, good water power is secured, and you will notice in *Figure 20* that various manufacturing cities like Philadelphia, Richmond, Raleigh, Augusta, Macon, Montgomery, and Columbus have grown up. Seaports are found at the mouths of these rivers.

The coast waters of the northern part of the plain are rich in cod,

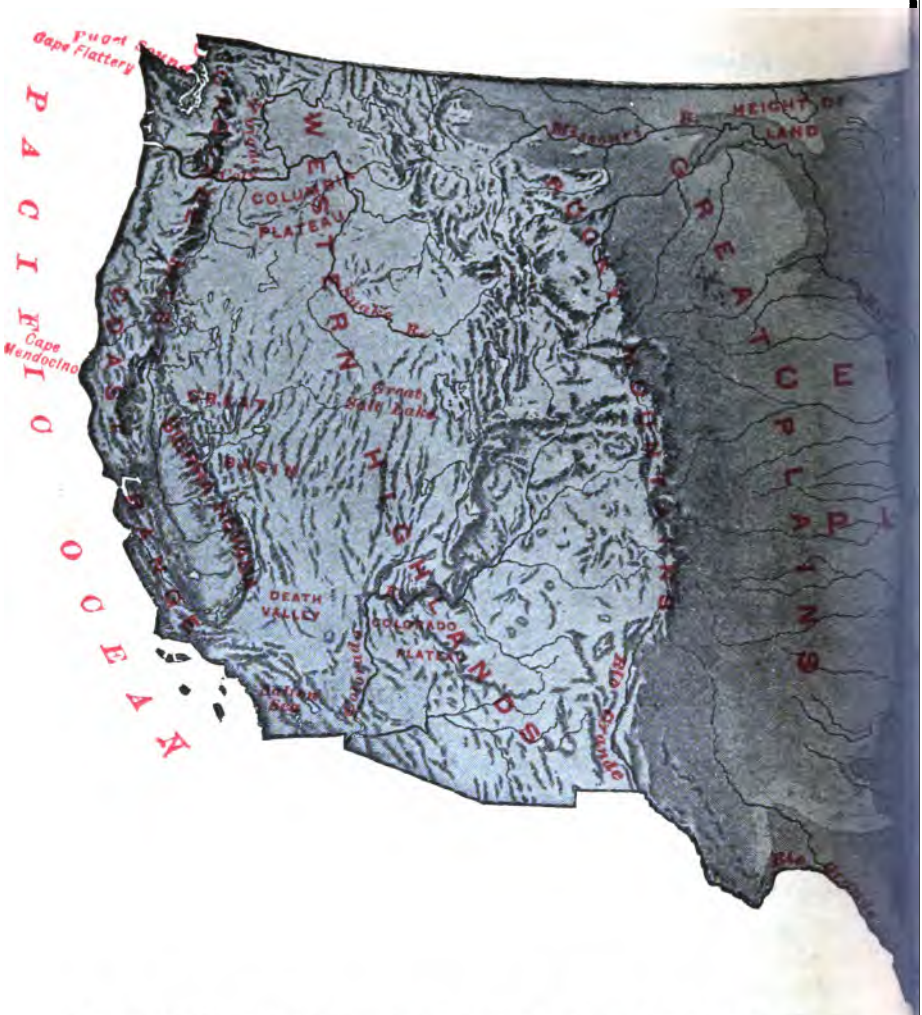


FIG. 17. UNITED STATES. — Explanation: The darkest tint indicates an average elevation of 500 feet or less; the second tint includes elevations up to 2,000 feet; the third tint, elevations from 2,000 to 5,000 feet; the lightest tints indicate the highland systems of the United States. (1) What natural divisions are included in the Central plain? (2) What divisions lie east of the Appalachian highlands? (3) What divisions are included in the Western highlands? (4) Trace the Great Divide in the Western highlands. (5) What three river systems drain its western slope? (6) What river system drains its eastern slope? (7) In what part of the Western highlands are Death Valley and the Salton sea? (8) Trace the outline of the lowland plains. (9) Name as many of the rivers as you can that cross these plains. (10) Which of these rise in the Appalachian high-

lands? (11) Which of them have their sources in the Western highlands? (12) Which one rises on the Height of Land? (13) What five lakes lie on the northern border of the United States? What river is the outlet of these lakes? (14) Trace the outline of the Great Plains. (15) What river systems are partly in these plains? (16) What part of the area of the United States is embraced in the Western highlands? (17) What two plateau regions do you find here? (18) What is the chief tributary of the Columbia river? (19) What indicates the dry climate of the Western highlands? (20) Why have the low plateaus of this region less streams than the high plateaus? (21) Judging from the number and size of the streams, what part of the United States has the most rainfall? (Compare this map with the rainfall chart on *page* 45.)

mackerel, and other fishes, and fishing gives employment to many people.

The Gulf Coastal Plain. — This, you will notice, is a continuation of the Atlantic plain, extending from Florida to Texas. With the alluvial plains or bottom lands along the Mississippi and its tributaries, it composes the richest part of the cotton belt.

The Appalachian Highlands. — The Appalachian mountains consist of a system of mountain groups and ranges extending from New

FIG. 18. The Great Plains of the western states.

Hampshire to Alabama. They include the Green mountains, the Berkshire hills, the Adirondacks, the Catskills, and the Highlands of the Hudson. The leading ranges of the central and southern part are the Blue Ridge, the Allegheny, the Unaka, and the Cumberland. These ridges enclose numerous fertile plains and valleys, like the Cumberland in New Jersey and Pennsylvania, and the Shenandoah in Virginia. You will notice in *Figure 17* that from these highlands flow the rivers of the coastal plain, the Connecticut, the Hudson, the Delaware, the Susquehanna, the Potomac, and the James.

In each section the valleys through which these larger rivers reach the sea form the gateways to the great interior of the country. They are the richest farming regions east of the Mississippi basin. The earliest emigration followed these valleys westward and developed the towns that were located on the lower courses of the rivers.

The forests of the Appalachian region added greatly to its wealth.

The ridges and slopes are forest clad, and the depth of soil in these old mountains is sufficient to support trees of the largest size. The forests, however, have been greatly depleted to obtain lumber, bark for tanning hides, and wood pulp for the paper mills. In the north most of the valuable timber has been cut. In South Carolina and Georgia lumbering and the manufacture of tar and turpentine give employment to many people.

The deposits of coal and iron have made the Appalachian region the chief iron and steel producing section of the world. Pennsylvania supplies nearly all the anthracite coal of the country. Extensive iron-ore deposits are found in Alabama and along the southern borders of the Great Lakes. Granite, marble, slate, salt, petroleum, coal, and iron are all found in this section.

The Central Plain. — This is the most important physical division of the United States and comprises nearly half of its area. Its prevailing industries are agricultural, but it is the source of varied forms of wealth. The surface is generally level, the only highlands worthy of note being the Ozark plateau in Missouri and Arkansas. Other slight elevations are the Black Hills and the low mountains bordering the Great Lakes. This last section is noted for its vast deposits of iron, copper, and salt, and for its extensive forests of pine, now rapidly disappearing.

Between the Lake region and the Ohio river, and reaching from the Allegheny plateau to the dry plains of the West, are the **prairies.** These are vast stretches of level, treeless, grassy plains, having a deep and rich soil. The prairie region is an ideal farming country and the chief source of breadstuffs, meat, and dairy products, not only for our own country, but also for the countries of western Europe.

The Great Plains, including the foothills of the Rocky mountains, extend from central Canada to the gulf of Mexico. It is a section where, on account of the dry climate, grazing is a more profitable occupation than farming. Millions of food animals graze here, large numbers being shipped every year to the great stockyards of Chicago, Omaha, and Kansas City.

The surface of the Great Plains varies in elevation from 2,000 feet on the eastern border to 5,000 or more at the foot of the mountains. There are no forests and the vegetation is mainly native grasses,

which are adapted to a dry climate; these grasses take deep root and afford nutriment for stock when other vegetation fails. The soil of the Great Plains becomes wonderfully fertile when watered, and many sections, especially in Colorado and Texas, have been changed into productive farms by means of water obtained from artesian wells and from streams.

The Lake Region of the Central Plain. — Two of the greatest systems of waterways in the world are found in the Central plain: the Mississippi and that of the Great Lakes and the St. Lawrence. The Mississippi system includes nearly all the important streams. These are extremely valuable for transportation and are navigated by thousands of steamboats and craft of every sort carrying freight and passengers. The navigation of the Great Lakes and the St. Lawrence river, though shared with Canada, is scarcely less valuable to the country than that of the Mississippi system. Lake Michigan is connected by canal with the Illinois river and Lake Erie with the Ohio, thus allowing steamers to pass from the Mississippi to the Great Lakes and through the St. Lawrence river to the ocean.

The basin of the Great Lakes touches the prairie region on the north and blends with it very gradually. The land bordering on the lakes is more rolling than the prairies, and the northern portion was originally covered with dense forests. Though a great deal of lumber has been cut, a thriving trade in this commodity is still carried on in northern Michigan and Wisconsin. One of the greatest copper and iron-ore producing sections of the world is in upper Michigan.

The Western Highlands. — Where the Great Plains terminate on the west, a plateau having an average elevation of 5,000 feet rises to form the foundation for the Rocky mountains. The Western highlands, including about one third of the whole country, extend from the steep wall of the Rockies on the east to the lofty Sierras on the west. Between these two systems are the high plateaus of the Colorado and Columbia rivers and the dry plains once known as the Great American desert. Rapid rivers have worn deep gorges through the plateaus and in the mountain sides, and erosion and weathering are rapid in their work of wearing down these young mountains. They have about twice the elevation of the old and worn-down Appalachian highlands. Parks or high valleys or basins filled with rich soil

from the bordering mountain ridges are very profitable for farming and stock raising.

Figure 17 shows how the Western highlands are divided into different regions: the Colorado plateau, the Columbia plateau, and the Great Basin.

The Colorado plateau, including Colorado with a portion of Utah, Arizona, New Mexico, and southern California, has an average height of 6,000 feet and is deeply furrowed by the canyons of the Colorado

FIG. 19. The summit of the continental divide, 12,000 feet above sea level.

river and its branches. The higher parts of the plateau are forested, but in general it is desolate desert.

The Columbia plateau comprises the parts of Idaho, Oregon, and Washington drained by the Columbia river and its branches. It has been built up by successive lava flows from volcanoes long extinct. The Snake river has cut a remarkable canyon with walls 4,000 feet high. The decayed lava forms a rich soil, and though sagebrush and bunch grass are the chief forms of vegetation there is rain enough to grow good crops of grain and fruit without irrigation.

Between these two plateaus, bounded on the east by the Wasatch range and on the west by the Sierras, is the depressed region called the **Great Basin.** It is the driest portion of the continent and much of

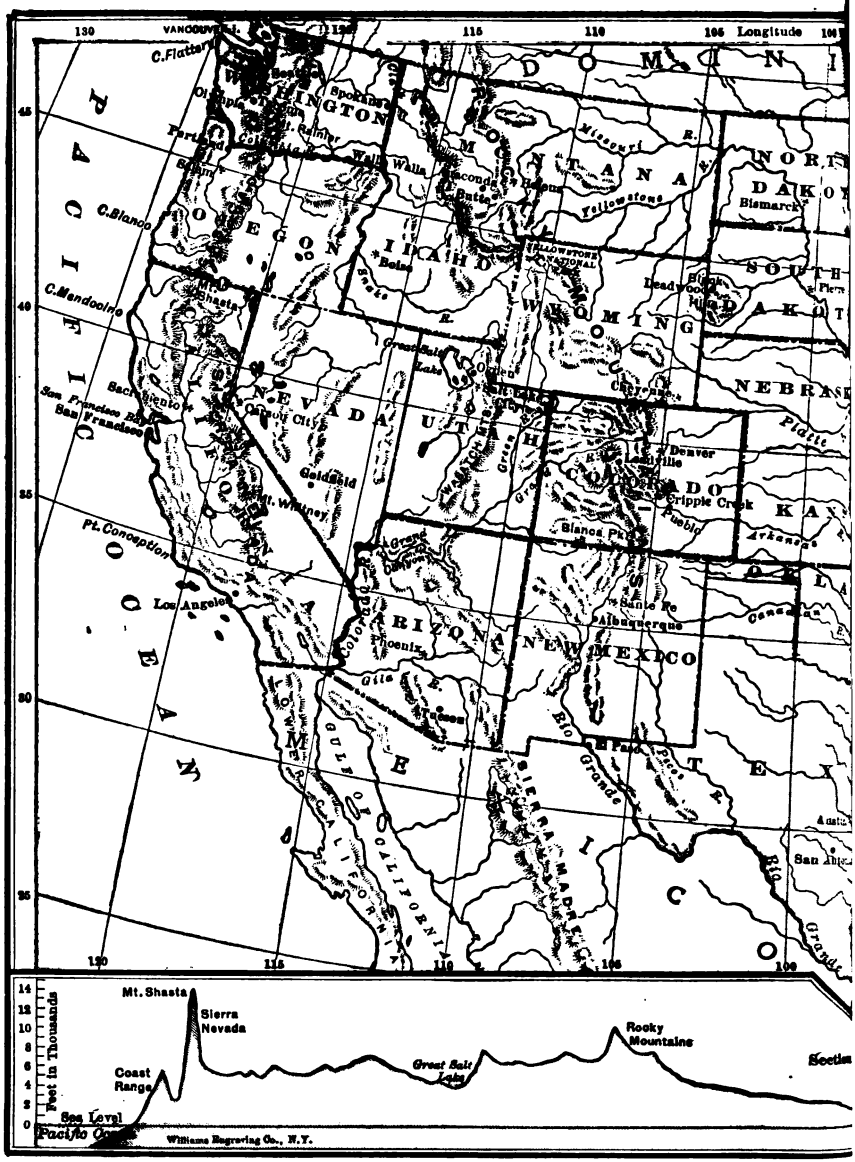


FIG. 20. MAP STUDIES. — (1) What is the location of the United States in latitude and longitude? Using the scale of miles, find its greatest length and breadth. Between what two countries does the United States lie? What ocean east? West? What gulf south? Name two inlets on the eastern coast. Two on the western coast. (2) In what state does the Mississippi river rise? In which state is its mouth? Name its three leading tributaries. Give the source and direction of each of the following rivers and tell into what body of water each discharges: Colorado, Columbia, Rio Grande, Hudson, Yellowstone, St. Lawrence, Snake. Name the five Great Lakes. Where is Great Salt

ce? (3) Name the states which border the Atlantic ocean. What states border the lf of Mexico? What three states on the Pacific coast? What states are bordered by the eat Lakes? Name the states on the northern boundary. What states on the east bank the Mississippi? On the west bank? (4) Name ten important cities on the Atlantic ast and tell in what state each is located. What two large cities on lake Erie? What o on lake Michigan? What three large cities on the Pacific coast? Name five cities on e Mississippi river. (5) How could you go by water from Duluth to Boston? From ston to New Orleans? From Chicago to Detroit?

it is a true desert. There is little plant life save where there is irrigation. From the bordering rim of the mountains a few scanty streams flow inland into salt lakes from which the water is rapidly evaporated. This section, crossed by a few independent mountain ranges, includes nearly all of Nevada and Utah and a portion of Oregon and California. Its area is over 200,000 square miles.

The Rocky Mountain Region. — Though the greater part of this region is arid and little fitted for agriculture, the section is rich in mineral resources. Gold, silver, copper, and lead are found in large quantities; $150,000,000 worth of these minerals being mined every year.

Many of the valleys are fertile. Some, like the Yosemite and the Yellowstone, have been reserved as national parks. Irrigation is the great transformer of this region, generally arid on account of the insufficient rainfall; and where it can be introduced splendid crops are secured.

The Pacific Ranges. — These consist of two parallel systems, the first consisting of the Sierra Nevada and Cascade ranges, and the second of the lower Coast ranges. Between these lie the valleys of California and those of the Willamette river and Puget sound. These constitute some of the best farming country in the world, their fertile soil producing abundant crops of wheat, oats, corn, and fruit. Irrigation is extensively practiced in southern California. The mountains tower from 12,000 to 15,000 feet in height. The western slopes of the Coast range are heavily forested with the most gigantic growth of forest trees to be found in the world.

Since the Coast ranges face the ocean in an unbroken wall, there is no coastal plain as on the Atlantic side of the continent, and the Pacific coast line is much more regular. The two great harbors of San Francisco and Puget sound are a great advantage to the commercial development of the western United States.

Climate of the United States. — The two great factors in the climate of a region are temperature and rainfall. Now that we have seen the features of the earth's crust in the United States, we should be able to determine its climate. You have studied the various causes of climate variation: latitude, altitude, distance from the sea, winds, rainfall, ocean currents, and highlands.

As we examine the United States in the light of these causes, we

find that its position and physical features divide it into three great climatic regions: the **Atlantic Coastal** and the **Gulf** region; the **Interior**; and the **West Coastal.**

The Atlantic Coastal and Gulf Region. — This region includes all the land east of the Mississippi. The section has cold winters in the north, warm summers and cool winters in the south. The rainfall map (*Figure 21*) shows us that it has fairly abundant rain through-

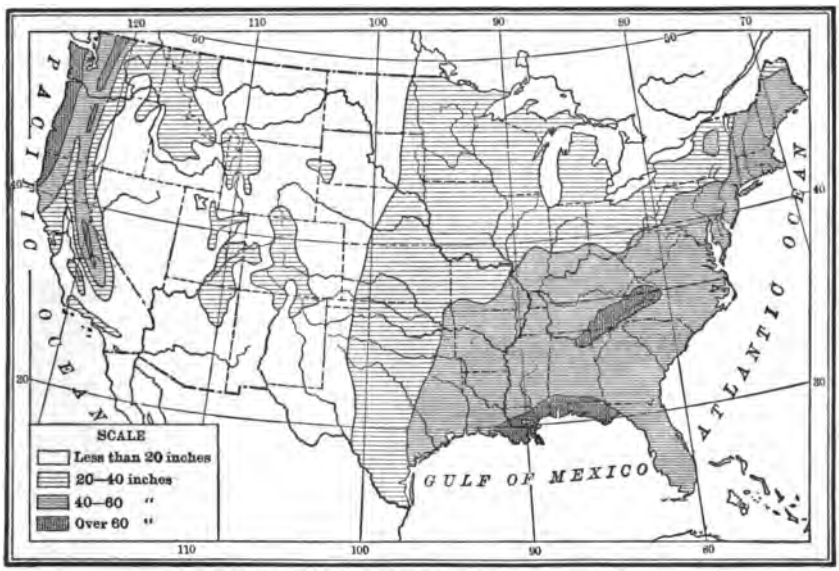


FIG. 21. Rainfall chart of the United States.

out the year. In no part is it less than 20 inches, and the average is from 50 to 60 inches.

Since the winds blow from the Gulf and ocean in summer, they carry moisture to the land, so that this region receives more abundant rainfall in summer than in winter. This at once determines summer as the more important season for agriculture.

The rainfall which you notice for the Texas coast is the result of the inblowing trade winds of the summer. Florida's rain depends upon the nearness of the warm ocean waters. In parts of the Gulf region,

rain falls almost daily, as it does in the tropics; but along the northeastern coast the summer and the winter rainfall are about the same in amount.

The summer temperatures are very high. This heat, together with the abundant moisture, makes this region a very important agricultural section, especially for the production of cotton in the south and cereals farther north.

The winters are subject to sudden and severe changes in temperature. A change of 45° in 20 hours often damages the fruit crops.

FIG. 22. A typical river steamer used in carrying freight up the Columbia river.

The trees begin to send out buds, and vegetables start in the thawed ground, only to be frozen again in a few days.

The Interior Region. — A wide range of temperature is found in the great region extending from the Mississippi to the Western highlands. The summers are hotter and the winters a little colder than in the Atlantic Coastal region. In January the average temperature of southern Illinois is the same as that of New York City, but in the summer the western temperature is about 10° higher.

The summers in this middle section are dry, with an abundance of

sunshine. Wheat and corn thrive under these conditions. The winters are cold and dry, made very severe by the cold north winds blowing from Canada without any protecting mountain range.

West of the 100th meridian a very dry climate is found. This dryness is due to two causes: the distance from the sea and the presence of the Western highlands. When the westerlies bring rain to the western slopes, they lose their moisture in passing over the highlands, so that the Middle West is dry. The winds falling on the eastern side of the Rockies are drying, because they are becoming warmer and they take up what moisture they find. The West Plains are thus rendered almost arid. The distance of the Interior region from the ocean causes it to receive little moisture from the east and south winds. These conditions render grazing the most profitable industry.

The West Coastal Region. — You will observe in *Figure 21* that the western part of the United States is divided into a number of north and south belts of varying rainfall. Sections of the coastal region receive more than 60 inches of rain annually. Owing to the trend of the highlands, the moisture is greatest near the Pacific coast, on the windward side of the Coast range and the still higher Sierras and Cascades. Why is this? Only on the tops of the Wasatch and other high Basin mountains does a little rain fall in this otherwise dry region. Again, farther east, on the still higher and colder Rockies, some more of the moisture of the westerlies is condensed. Most of the rain throughout this region falls in winter, when the westerlies extend farthest south. The winter rainfall of northern California, Oregon, and Washington is very heavy. The lack of summer rainfall, of course, prevents the carrying on of agriculture without irrigation. The rain in the higher sections, however, supports dense forests.

You will note the great dry, desert areas between the Rockies and the Sierras, embracing parts of Arizona, New Mexico, Nevada, and California. The driest region in the United States, the Mohave desert in California, is found here. The population is scanty, and no agriculture is possible without irrigation.

As regards temperature, the climate of the Pacific Coastal region is very even; that is, the temperatures are not subject to sudden changes from month to month as they are in the Interior region. Then again, owing to the nearness to the sea, the average winter

temperature of San Francisco is about the same as that of Galveston, despite the difference in latitude. On the other hand, its average July temperature is lower by 10° than that of Portland, Me. Owing to its balmy climate, California is noted as a winter resort.

UNITED STATES RAINFALL. — (1) Explain the presence of the great western belt of light rainfall. (2) If the Rocky mountains ran east and west across the southern states, what would be the probable effects on our climate? (3) Compare the rainfall of Maine with that of Washington. (4) Explain the desert regions in New Mexico and Arizona. (5) Explain why the rainfall of California varies from under 20 inches to over 60 inches. (6) Of the winds blowing over the northeastern United States, which are apt to be dry winds and which are apt to be rainy? (7) Explain how New York City gets its rainfall. (8) In what states would you look for irrigation projects? (9) Would it be more profitable to irrigate the dry sections of California or of Wyoming? Why? (10) Why are railroads willing to advance money to settlers for irrigation purposes? (11) Account for the rainfall of Texas. (12) In the interior of what other continents do you find dry conditions? (13) Why are not the Great Plains as well suited to agriculture as the prairies?

FIG. 23. Irrigation ditches on a western cantaloup farm.

Irrigation.— We can understand now the great need for artificial watering in the western regions. Water is obtained from the streams that flow down the mountain regions, where the rainfall is much greater than on the lowlands. They are tapped in their upper courses and the water is led into canals, which are built with a gradual descent, leading the water to the places where it is needed. From these main canals smaller ones lead out to the different farms, and still smaller ditches distribute a supply of water to the orchards and growing crops.

In case the streams in the arid regions are small or dry up during the summer, it is necessary to construct dams and reservoirs to store up the water, which is abundant during the season of rain or when the snow melts. These dams have been constructed by the United States Reclamation Service.

Results of Irrigation. — Since the soil of arid lands in the western states is rich in plant food, regions that were once destitute of all vegetation except a few straggling plants are transformed into wheat fields, meadows, and productive orchards by irrigation. New cities spring up, railroads are built, and the desert is changed into a busy and prosperous community. Irrigation increases the value of the land from a few dollars an acre to several hundred, and to even higher values. It enables the farmer at small cost to raise two crops a year instead of one, and where the soil is adapted to fruit growing the profits are very large. Methods of irrigation are especially advantageous to the fruit-growing industry, as water in proper amounts can be supplied just at the right time, while the dry atmosphere is unfavorable to the generation of insects which attack the fruit.

Having examined the physical features of the United States and the climatic conditions of temperature and rainfall which are the result of these, we are about to see how the people of this country make use of the resources nature offers.

QUESTIONS AND EXERCISES. — (1) Why is the United States the most important country in the western hemisphere? (2) Give its location in latitude and longitude. (3) Draw a cross section from the Pacific to the plains and show all the surface divisions. (4) Name all the divisions of the Appalachian highlands and tell in what states each division is found. (5) Name all the states and parts of states included in the plains; in the prairies. (6) How do the Rocky mountains differ from the Appalachian? (7) Find the approximate distance between New York and New Orleans; Quebec and Vancouver; San Francisco and Victoria; St. Paul and Galveston; New York and Chicago. (8) On an outline map locate the chief rivers of the United States. (9) Why are so many islands, peninsulas, bays, and harbors found on the northeastern coast? (10) Why are so few harbors found on the southern coast? (11) Write the names of the surrounding waters and chief islands of North America. (12) Compare the climates of Boston and Minneapolis; Seattle and St. Louis; New York and Denver. Account for the difference.

CHAPTER V

AGRICULTURAL PRODUCTS OF THE UNITED STATES AND WORLD AREAS OF PRODUCTION

The Source of Food. — We have already seen how all the wealth of man comes from the earth. The great food plants, such as wheat, corn, rice, and the grasses, are the most important of her products, because the grains are used by all except a very few peoples,

FIG. 24. Hillside wheat plowing by motor in California.

while practically all the animals used by man for food are themselves dependent for sustenance upon the grains or the grasses. One third of the world's population, or about six times the population of the United States, are consumers of wheat bread. Every person of this great number consumes yearly very nearly one barrel of flour, or

about four and one half bushels of wheat. This enormous consumption, which is increasing every year, makes wheat easily the king of all vegetable products.

The Needs of the Wheat Plant. — The ideal climate for wheat is one with a long and rather wet winter, with but little or no frost, prolonged into a cool and rather wet spring, which fades into a warmer summer, the weather growing gradually drier as it grows warmer. These conditions obtain throughout many regions in the temperate zones. The plant thrives best between the parallels of 25° and 55°. Good wheat land is usually a moderately rolling country, which in-

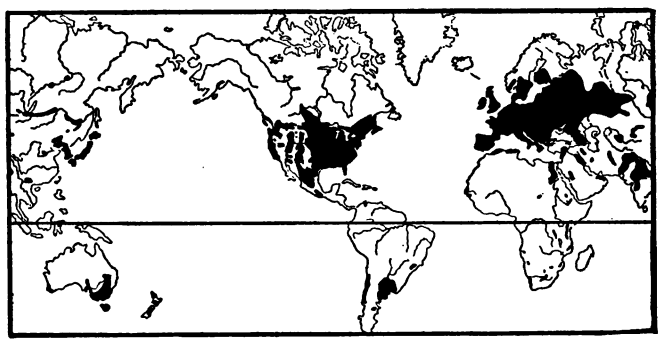


FIG. 25. The great world areas of wheat production.

sures sufficient drainage and at the same time allows of easy tilling and of harvesting by field machinery. Two square feet of land will raise about enough wheat to make a pound loaf of bread. The best soils are loams or light clays, containing the necessary elements of plant food, especially nitrogen. Such soils are usually found in river basins, the beds of old lakes, and sometimes on the lower slope of hilly regions. From 20 to 40 inches of rainfall a year are required by the wheat plant. Wheat, being a winter plant, requires a season of coolness and moisture in which to germinate and attain its growth. A steady covering of snow is the most favorable condition possible for winter wheat.

According to climatic and weather conditions, wheat is sown either in the autumn or in the early spring. That sown from early Septem-

ber to late October remains in the ground all winter and ripens in June or July of the next season. This kind is called **winter wheat.** Some wheat is sown early in the spring to mature in the following July or August. This variety is called **spring wheat.**

Where these Conditions Prevail. — Wherever these conditions of soil, temperature, and rainfall are found, wheat can be successfully grown. In North America the wheat region extends into

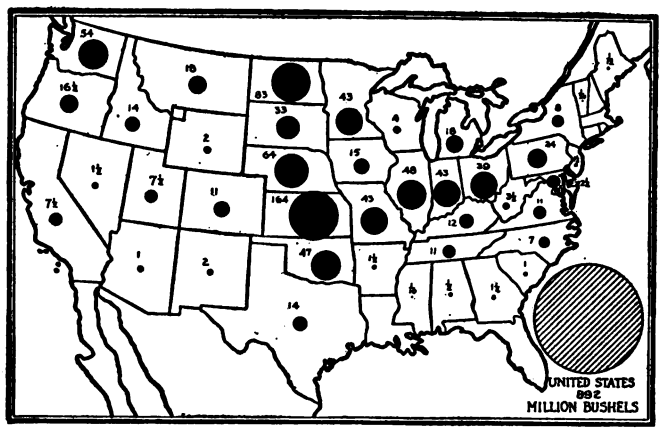


FIG. 26. The chief wheat-growing states, with their product in millions of bushels.

Canada as far north as Hudson bay. The soil and climate of the prairie region and of the northern portion of the Pacific slope are especially favorable for wheat culture. Russia, France, Canada, British India, Argentina, Czechoslovakia, Germany, Italy, and Spain are foreign regions that help to fill the world's bakeries. The great plain south of the North and Baltic seas, and the plain extending through southern Russia, together with the valleys of the Po and the Danube, all possess the required conditions. Indeed the plant is grown to some extent in every region of the north and south temperate zones, and also within the limits of the tropics, where soil and climate are favorable. Trace these regions on *Figure 25.*

The United States as a Producer. — *Figure 26* shows us that the rich prairie region of the West, the fertile territory adjoining the

Red River of the North, is the great American wheat district. Here on great farms, where from 30,000 to 40,000 acres are under cultivation, spring wheat is grown in great abundance. Farther south, from Ohio to Kansas and Nebraska, where the winters are less severe, winter wheat is planted in the autumn and the crop cut before it is injured by the summer heat. The Pacific states raise winter wheat and a variety known as **macaroni wheat,** which is used mainly in the

FIG. 27. A great grain elevator at Duluth, Minnesota.

manufacture of macaroni paste, since the product is not suited for bread making.

The United States is the leading country in the production of wheat, largely on account of the machinery used for harvesting and handling the crop. The value of our annual product is $900,000,000. On the great farms " out West " the level prairie is plowed with huge steam plows turning from 15 to 30 furrows at a time. The seed is sown by drills and the crop is harvested with machines that cut and bind the

grain. If the crop is ripe and the seed is hard, a combined harvester and thresher handling 1,500 bushels a day may be used, which not only cuts the grain, but threshes and bags it. As soon as the wheat is threshed it is stored in large buildings, called **elevators,** until ready for market. Some of the larger elevators will handle a thousand bushels a minute and will store two million bushels each. Eighty-three million out of a total of 95 million bushels exported go by way of New York, Philadelphia, Galveston, and Baltimore to the countries of northwestern Europe. Nearly one half of the wheat exported is in the form of flour, and is sent mainly to countries that have not the means of manufacturing flour economically.

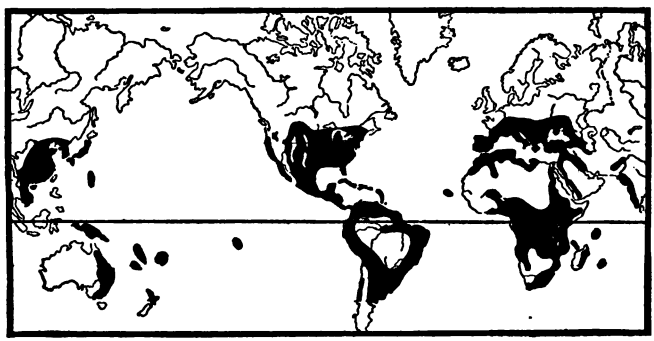


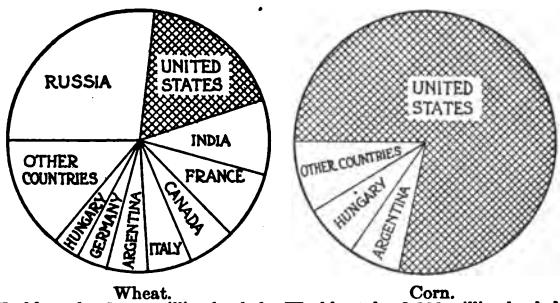
FIG. 28. The great world areas of corn production.

Flour. — A large part of the wheat crop is shipped by rail to the milling centers to be made into flour. Flour making is carried on chiefly near the wheat regions. Minneapolis has the largest milling plants in the world. Here are found single mills which produce 16,000 barrels of flour in one day. The daily output of this center is 60,000 barrels. St. Paul, St. Louis, Superior, and Buffalo are the other large flour-making centers. Flour is now made by the roller process, which took the place of the old millstones about 30 years ago. The grain passes between six or seven sets of chilled-steel or porcelain rollers, which crack instead of grinding it. By this process much of the gluten that was formerly lost is now retained.

The World's Supply. — The world eats more wheat every year than it did the year before. The rice eaters of Japan and China are

turning to wheat in greater numbers, and our own home demand is growing at such a rate that it seems as if, before many years, there will be no wheat left for us to export. The world must have at least three billion bushels a year to keep above the danger line. The United States produces one fifth, Europe about one half of this supply. With the exception of Russia and France, no other country in Europe can supply its own demands. Great Britain eats her entire crop in three months, Germany in six months.

New wheat sections are constantly being developed and advanced methods of cultivation, with the use of special machinery, are increasing the output of the old sections. In Denmark, due to more skillful cultivation, over three times as many bushels per acre are produced as in the United States; in Germany twice as many. Argentina, a comparatively new wheat country, is now producing nearly 200 million bushels and is rapidly increasing its yield. The Russian yield, including the output of the new fields in Siberia, is now the greatest in the world.



Wheat. World total = 3,400 million bushels. Corn. World total = 2,800 million bushels.

FIG. 29. The place of the United States in the world's production of wheat and corn.

Corn. — Corn, or maize, is our most valuable farm crop. It requires a richer, heavier soil than wheat, and a warmer climate. It needs long summers and warm nights. From four to five months are required to grow and ripen it. Hence its range in latitude is lower than that of wheat. Corn contains more fatty matter than other grains, and on this account is a good food for out-of-door workers. While it is not eaten very largely in the United States in comparison with wheat, in Spanish America, from Mexico to Chile, it is about the only cereal used as food. It has spread from America to the southern countries of Europe, and is much used for food in Italy and Rumania, and also in Egypt and India. It is especially valuable for fattening animals, and three fourths of the crop is used for that purpose.

The United States as a Producer. — The United States is the chief producer of corn, yielding in some years five sixths of the world's supply, nearly three billion bushels, which is equal to the world's supply of wheat. The **corn belt** stretches from Ohio to Kansas, Illinois and Iowa yielding more than 300 million bushels each.

In this country it is fed very largely to hogs, and much of it is given to cattle. When it is converted into pork or beef, it is worth about six times as much as when used for human food, so that it is much more profitable to ship abroad the meat of animals fed on corn

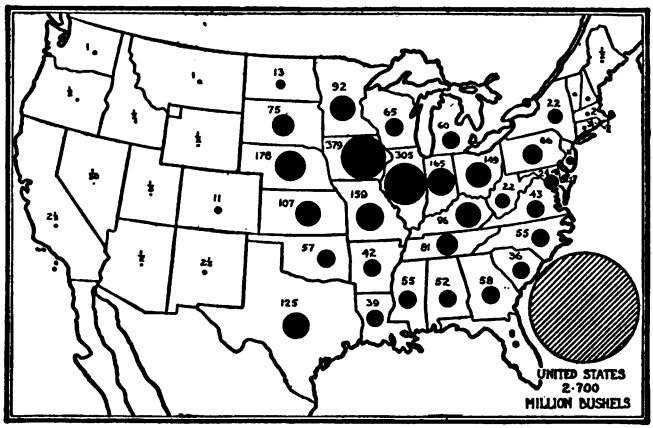


FIG. 30. The chief corn-producing states, with their product in millions of bushels.

than to ship the corn itself. About one fifth of the crop is manufactured into alcohol, starch, and glucose.

The corn crop is very important in Australia and Mexico; the grain thrives also in Italy and Austria.

Barley and Oats. — The first-named plant has a wider range of latitude than any other cereal. It was once the chief breadstuff of the world, but is now mostly fed to cattle or converted into malt. The second largest cereal crop in temperate climates is oats, nearly 3,600 million bushels, of which the United States and Russia produce about 1,000 million bushels each. Most of

the product is fed to horses, but its use as a human food is increasing.

Rice. — This plant is the breadstuff of one third of the human race and the principal food crop of southeastern Asia from India to Japan. With the use of improved machinery, similar to that used for wheat, the rice crop of the southern United States is increasing rapidly and now amounts to 21 million bushels a year.

Cotton Growth. — The cotton plant, requiring rich soil, abundant rain, and a long hot summer, will not grow in the northern United States, its upper limit being about 38° of latitude. The ideal conditions are found on warm coast plains and on the lower flood plains of sub-tropical rivers.

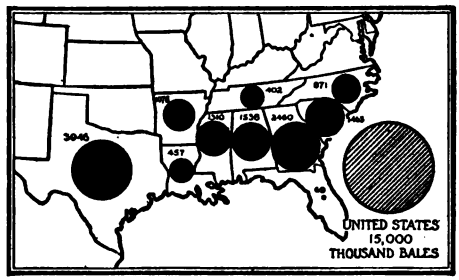


FIG. 31. The great cotton states, with their product in thousands of bales.

The cotton belt in our country extends along the Gulf coast from Georgia to Texas, and in the central region from the Carolinas over Tennessee and Arkansas to Oklahoma. India, Egypt, China, Brazil, Korea, Russia, Persia, Japan, and parts of Africa and South America have climatic conditions which meet the demands of this plant. Its culture has been introduced into British East Africa and Uganda, where it promises to become a very important product.

The United States as a Producer. — Three fourths of all the cotton used in the world for the weaving of cotton cloth is furnished by the United States. In 1914, 15 million bales of about 500 pounds each were produced. The crop here ranks in value next to corn. Every year a larger portion of it is woven into cloth in this country. Its largest yield is on the flood plains of the rivers of the South, where each acre bears about one bale. The sea-island cotton of the islands off South Carolina and Georgia, producing a fine, strong fiber about two inches in length, is considered the most valuable cotton grown. About one half of our cotton crop is manufactured at home. It is sent by river and rail to the ports of Galveston, New Orleans, Savannah,

and Charleston, where it is received by coasting steamers bound for New York and Boston. From these points it is sent by rail or boat to the inland factory towns, where it is spun and woven into sheeting,

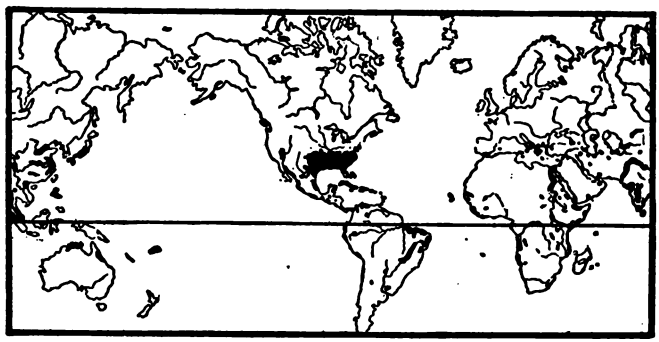


FIG. 32. The great world areas of cotton production.

calico prints, ginghams, shirtings, flannels, and outing cloths, which are the chief products of the American mills. The New England manufacturing towns are located where water power is available, but in recent years steam and electric power have been introduced into many of the mills.

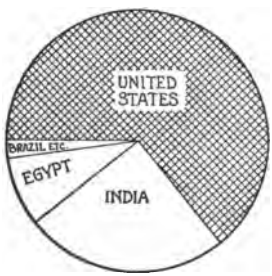


FIG. 33. The place of the United States in the world's production of 20 million bales of cotton.

A great many uses are made of the cotton plant by American genius. From the fiber, yarn, thread, clothing, wadding, absorbent and gun cotton are produced. The stalk is used for feed, paper stock, and fertilizer. The root is used for fuel, fertilizer, and for medicinal purposes. The oil, oil cake, meal, and fertilizer manufactured from cotton seed are now valued at over $150,000,000 annually.

About 40 per cent of the crop goes to Great Britain, the oldest and largest producer of cotton goods. The remaining tenth is sent mainly to Germany, France, Italy, and Japan. The chief purchasers of our cotton manufactures are the Chinese, the South and Central American states, and the British dependencies.

The World's Supply. — Cotton is used for a body covering by practically all people, civilized and savage, living outside of the frigid zones. The world uses 20 million bales yearly, of which the United States produces about three fourths. India ranks second; China and Korea produce nearly as much. Egypt, with the development of irrigation canals, is increasing her output. Brazil has a small product, and Asiatic Russia has not yet developed its cotton crop to its greatest extent on account of poor transportation facilities. The invention of a successful machine for picking cotton will put cotton cloth within reach of every human being. An invention proving fairly success-

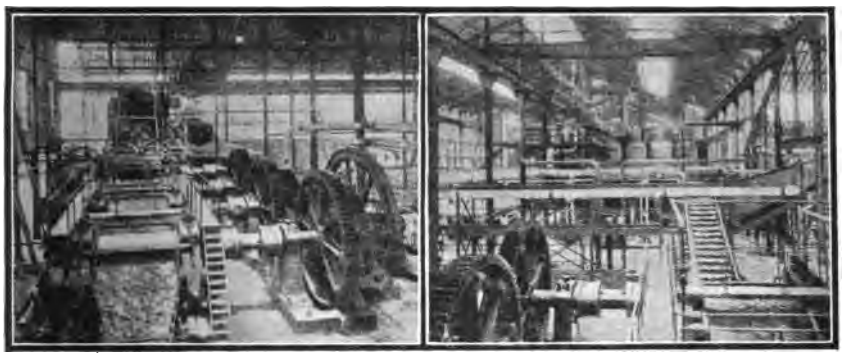


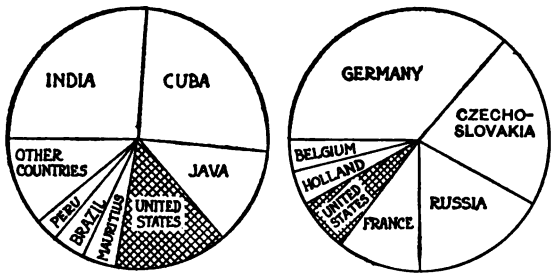
FIG. 34. Interior scenes in a modern sugar mill in Cuba.

ful now is an air-suction picker working on the same principle as the vacuum carpet cleaner.

Silk. — Silk is the most costly as well as the strongest and most beautiful of all the common fibers. The silkworm spins a cocoon of fine, lustrous, elastic threads which form the raw silk of commerce. A large amount of hand labor is required in feeding and caring for the worms. China and Japan produce about 70 million pounds a year, and with Italy and Asia Minor produce most of the raw silk of commerce. We buy $82,000,000 worth every year, chiefly from Japan. Artificial silk, but little inferior to the natural fiber and much cheaper, is now widely manufactured.

Flax. — Next to cotton, the most important vegetable material for spinning is flax or linen. Russia to-day produces about half of the

world's supply, but it is largely of inferior grade. Ireland and Belgium produce the best quality of fiber. It is grown also in Holland, France, Egypt, Italy, and to some extent in the United States. The cost of separating the fiber from the stalk is too great for its profitable production in this country. Linseed oil is made in this country from the flax seed.



Cane sugar. World total = 9½ million tons. Beet sugar. World total = 9 million tons.

FIG. 35. The place of the United States in the world's production of sugar.

Sugar. — The sugar of the world is obtained from two main sources: sugar cane and beet root. The sugar cane grows in moist, tropical climates, attaining a height of 10 or 12 feet, with stalks several inches in diameter. The juice is removed by pressing the stalks between heavy rollers. It is then

FIG. 36. The world areas of cane-sugar and beet-sugar production. The beet-sugar regions are black, the cane-sugar shaded.

evaporated in huge vats, and brown sugar crystallizes out of the liquor. The sugar is separated from this liquor (molasses) and is sent away to the refineries, where it is made into the granulated and loaf sugar of commerce. In extracting sugar from beets they are first sliced and put into cylinders of hot water, by which the juice is dis-

solved. The liquor is then evaporated in the same manner as the cane juice.

Louisiana is the only state of the Union producing sugar extensively from the cane. Cuba, Hawaii, the Philippines, Santo Domingo, and Porto Rico are other regions where the climatic conditions permit the growth of sugar cane.

Sugar is a modern luxury. The old nations did not have it, nor did it come into common use until the last century. During the latter part of the nineteenth century the demand increased so rapidly as to raise the price greatly. It was then discovered that sugar could be obtained from beets, and the beet-sugar industry has become a close

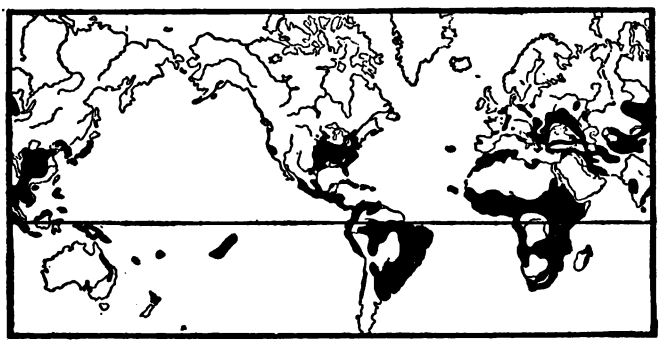


FIG. 37. The great world areas of coffee production.

rival of the cane-sugar industry. Very little beet sugar, however, is imported into the United States. Germany, Czechoslovakia, Russia, and France are producers of beet sugar; in this country it is produced mainly in California, Michigan, and Colorado.

The greater part of the world's crop of raw sugar is used by Great Britain and the United States, Germany, and France. The United States consumes one fifth of all the sugar in the world, every inhabitant eating 86 pounds a year. Little is used by Latin or by Oriental nations. The cane sugar of this country raised in Louisiana amounts to about 150,000 tons annually. Besides using our own crop of sugar, we import large amounts from Cuba, Hawaii, Porto Rico, and the Philippines.

Coffee. — The total crop is about 2,500 million pounds, of which Brazil furnishes three fourths. Colombia, Venezuela, Porto Rico,

Central America, Java, Mexico, and the West Indies grow smaller quantities. The United States consumes more than any other country, taking one half of the world's supply. Germany, France, Austria, Hungary, Belgium, and Holland are the other great coffee-drinking nations.

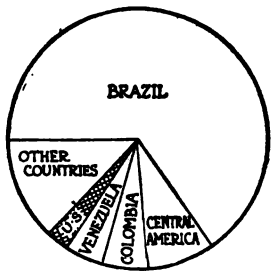


FIG. 38. The world's production of coffee.

Tea. — This plant grows best in tropical highlands having warm, rainy summers. China and Japan have had until recently a monopoly of tea growing, but now India and Ceylon furnish three fifths of the 680 million pounds exported. Russia and Great Britain are the largest consumers. Whereas the United States consumes 860 million pounds of coffee every year, she buys only 95 million pounds of tea. One half of our tea comes from Japan, one quarter from China, and the remainder from Ceylon.

Cacao or Cocoa. — The cacao tree grows in Mexico, Central America, and part of South America. It has been carried to Ceylon, the Philippines, Europe, and Africa. The seed, which is the raw cacao of commerce, resembles a thick almond in size and shape. **Cacao** now signifies the raw and **cocoa** the finished product of these cacao pods. **Chocolate** differs from cocoa in that the "**cocoa butter**," a fat that is contained in the beans, is part of the chocolate, but is taken out when cocoa is made. The United States buys $20,000,000 worth of cacao every year.

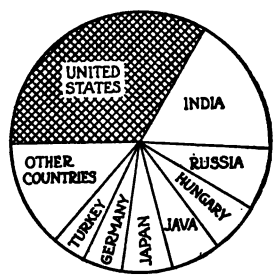


FIG. 39. The world's production of tobacco. Total 2,800 million pounds.

Tobacco.—Conditions of soil and climate and the care used in the selection of seed and its cultivation greatly affect the quality, and hence the value, of the tobacco plant. It can be grown alike in the torrid and temperate zones, growing as far north as Wisconsin, Connecticut, and New York, as *Figure 40* shows. Originally a native of America, tobacco in the last 300 years has extended over the entire world.

Cuba, Egypt, and Turkey raise the choicest qualities. Sumatra,

Porto Rico, the Philippines, Mexico, Brazil, and India also raise a good quality. The United States is the largest producer, and Kentucky, which yields over 280 million pounds, more than one third of the total product of the country, is the leading tobacco state. Virginia and North Carolina rank next. Cigarettes, chewing tobacco, smoking tobacco, and snuff are made largely in Richmond, Lynchburg, and Petersburg, Va., in Wheeling, W. Va., Durham, N. C., and in St. Louis, where the greatest factories are located. Cigars are manufactured in large and small factories throughout the country. Quantities of Havana tobacco are brought from Cuba to Key West, Fla., and there made into cigars. The exports of tobacco are of nearly twice the value of the imports, and are sent mainly to Great Britain and her dependencies and to Germany, Italy, and France. Smaller amounts go to Japan and China. One third of the whole world crop of 2,900 million pounds is grown in the United States.

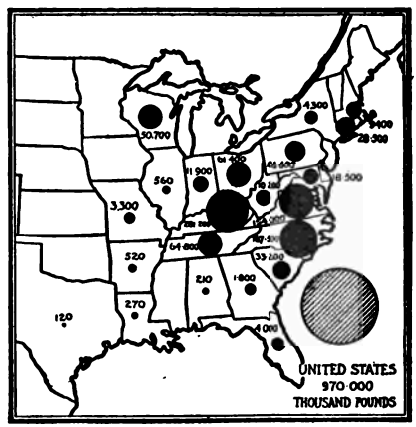


FIG. 40. The chief tobacco-growing states, with their product in thousands of pounds.

QUESTIONS. — (1) What are the needs of the wheat plant? (2) What four countries produce the bulk of the world's supply? (3) Can you think of any changes likely to result in the Asiatics due to their increasing consumption of wheat? (4) Explain the difference between spring wheat and winter wheat, and mention a district in this country in which each variety is generally grown. (5) State the uses made of the corn plant. (6) What part does the United States play in the production of the world's corn supply? Why? (7) Tell how the needs of the cotton plant differ from those of the wheat plant. (8) What four countries produce the bulk of the world's cotton? What three countries manufacture cotton extensively? (9) In regard to the cotton industry of the United States, state the chief producing region, the chief manufacturing region, the countries to which raw cotton is exported, the countries to which manufactured cotton is exported. (10) In what ways is cotton used by people? (11) Why is it that Cuba produces both cotton and sugar? (12) What part does the United States play in the production of sugar and tobacco? (13) There were consumed in the United States last year 8,200 million pounds of sugar. How many pounds were consumed by each person on the average? (14) Is it mainly the sugar cane or the sugar beet that is raised in Europe? Why?

CHAPTER VI

ANIMAL PRODUCTS OF THE UNITED STATES AND WORLD AREAS OF PRODUCTION

Beef Cattle. — A great American beef packer, returning from Europe not long ago, said that he had just been forced to complete arrangements to supply the European market with meat from Ar-

FIG. 41. The stock yards at Omaha.

gentina to supplement the deficient supply from the United States. It is a fact that American packers will soon be without the meat for foreign trade, owing to the rapidly increasing demand in the United States for meat products.

Of all the domestic animals, horned cattle are the most important

and valuable for their flesh, milk, and labor. A damp, temperate climate, with quick-growing grass, is most favorable for cattle. The earth sustains many millions in the agricultural countries. Europe has about 113 million, India 90 million, the United States 57 million, and Argentina 30 million.

Regions with too little rain for the farmer, but with enough for the growth of grass, and with a climate not too severe, are suitable for cattle and other grazing animals. Great ranges of this type are found

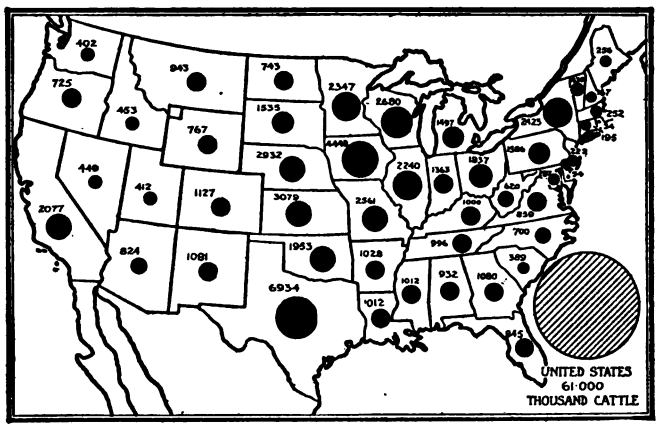


FIG. 42. How cattle are distributed over the United States. The figures show the number in thousands.

in the grassy llanos of Venezuela, the steppes of Russia and China, the plateaus of South Africa, the pampas of Argentina, and the plains of India. In the United States, cattle are raised for their dairy products and for the market.

Beef cattle are raised on the western plains and are fattened in the states of the corn belt, although many are shipped to market directly from the grazing region. The success of **stock raising** depends upon the climate, and also upon the quality of the grass found in the arid sections, which preserves its nutritive qualities even when covered by the snow. The cattle were formerly pastured during the winter, and the long-continued cold and deep snow killed many of them. But where the public ranges have been fenced in and the cattle cannot wander

over wide areas in search of food, the ranchmen have to raise **alfalfa** or other forage grasses for winter fodder. Texas, Colorado, Montana, and New Mexico are the greatest **ranching states,** while Iowa, Kansas, and Nebraska rank next to Texas in the shipment of beef cattle. The United States raises more than one sixth of the world's cattle. Notwithstanding the great ranges of "buffalo grass" in the West, the cattle raised in the corn belt are fatter, because of the more abundant supply of forage and grain in that region.

Millions of cattle are slaughtered every year in Chicago, St. Louis, Omaha, Kansas City, and Cincinnati, and the beef is shipped in re-

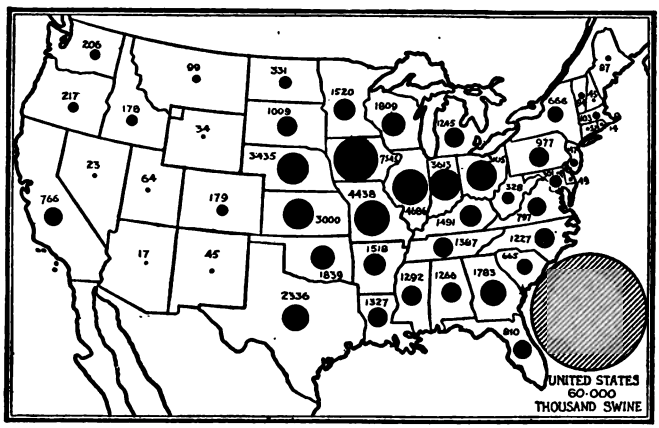


FIG. 43. How swine are distributed over the United States. The figures show the number in thousands.

frigerating cars to every part of the United States. Cattle are exported alive to Great Britain and her dependencies, but with the improvement in preserving meats by cold storage, the shipment of live cattle has been largely superseded by the shipment of fresh meat. Cold-storage compartments of steamers now carry most of the meat products transported. Canned, dried, and salted beef, and tallow are exported to Great Britain, Germany, France, and other countries of Europe, and quite largely to the American republics south of us.

Besides the beef and tallow, the hides, horns, hoofs, and bones of the cattle are shipped to tanning and manufacturing centers to be

converted into useful articles. Owing to the rapid decrease in the supply of cattle in the United States, we are forced to buy $118,000,000 worth of hides and skins every year from Argentina, Russia, and Canada.

Dairy Products. — The dairy industry is mainly confined to the corn belt and the eastern states. Wisconsin, Iowa, Minnesota, and Illinois are the leading states in the industry. A temperate climate and good crops of alfalfa, corn, and grass are chiefly necessary for good results.

Milk, butter, and cheese are known as **dairy products.** Milch cows are carefully bred with the view of obtaining the largest amount and best quality of milk. Since milch cows must be well fed in order to

FIG. 44. A North Dakota sheep ranch.

be productive, dairy farming is carried on in those sections where corn, oats, and hay are most abundant. Root crops are grown, green fodder is preserved in silos for milch cows, and brans from the milling towns and cotton-seed meal from the South are also used as food for them. New York, Iowa, Wisconsin, Pennsylvania, Illinois, Minnesota, Ohio, and Texas are the leading **dairy states.**

In the neighborhood of large cities very little milk is manufactured into butter and cheese, because the milk finds so ready a market near by. Hence there is a large domestic trade in these products with the more thinly settled western states. Omaha and St. Paul now claim to be the largest butter-making cities in the world, the former producing over 12 million pounds a year.

In proportion to her population, the United States contains about one milch cow to every four inhabitants. It makes about twenty pounds of butter, four pounds of cheese, and six pounds of condensed milk for every inhabitant each year. In all, the value of the dairy products of the United States is $500,000,000, and about one third of this is sent to European countries whose home product is not sufficient to supply their needs.

Pork Products. — The United States is the largest hog-producing country in the world, containing about 60 million animals valued at $400,000,000. It supplies about one third of the world's market.

Cattle. World total = 430 million. Swine. World total = 145 million. Sheep. World total = 625 million.

FIG. 45. The world's great live stock production.

More hogs are raised in this country than in Russia, Germany, and Czechoslovakia combined. The greatest number of hogs are raised where the grain on which they are fattened is most cheaply produced. Chicago, Kansas City, and Omaha lead in pork packing as well as in beef packing. Milwaukee, Indianapolis, Cincinnati, and Buffalo also do a large business in this line. Lard, hams, bacon, and pork are the chief products. Very little of the hog goes to waste. The bristles are used for brushes and in mixing mortar; the intestines are used for sausage casings; the bones are charred and used in sugar refining or, together with the blood and other refuse of the slaughter-houses, are made into fertilizers. The horns and hoofs are made into combs and buttons.

A pork-packing establishment is fitted with every mechanical device for rapid work. The hogs are killed, scraped, cleaned, and made ready for market at the rate of 20 per minute, each part of the work being done by a separate gang of men, who acquire great skill and

rapidity. Hog products to the value of $115,000,000 were exported to Europe and other countries in 1914. Great Britain, Germany, and France are the largest buyers, but in one form or another the hog products of the United States find their way to all parts of the world.

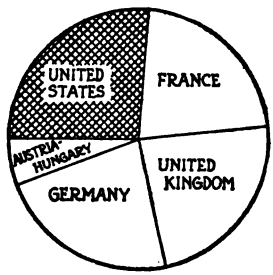


FIG. 46. How the great nations consume the world's supply of 2 billion pounds of wool for manufacturing purposes.

Sheep and Wool. — The most important of all animal fibers is wool, a variety of hair. Profitable sheep raising requires a temperate climate and dry, elevated regions where there is good pasture. Australia, New Zealand, Russia, South Africa, Argentina, and parts of Europe support great numbers of sheep. Frozen mutton is shipped from New Zealand to London and Paris. In the United States, Montana, Wyoming, New Mexico, Idaho, California, and Oregon pasture the largest numbers. Large, coarse-wooled sheep are raised here for the mutton, and the smaller, fine-wooled animals for wool. Although over 50 mil-

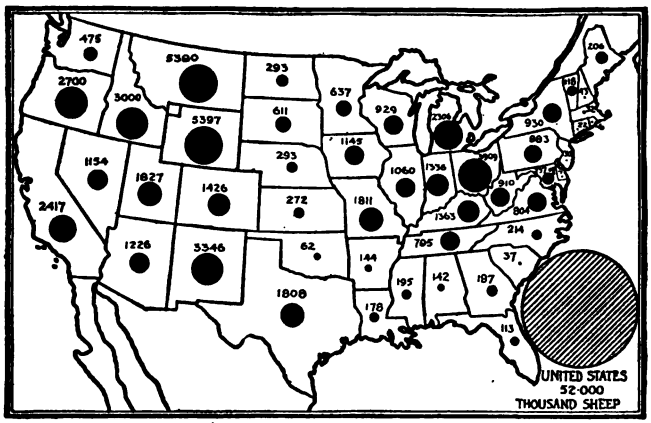


FIG. 47. How sheep are distributed over the United States. The figures show the number in thousands.

lion animals are kept in the United States, we are unable to supply our own demands. We import over 125,000 animals and about 235 million pounds of wool every year to supply our woolen factories, since

the 300 million pounds we clip annually are not sufficient. Sheep are generally sheared once a year, usually in April or May, with close-cutting machine clippers. The fleeces are tied in bundles and then packed in sacks which hold about 400 pounds.

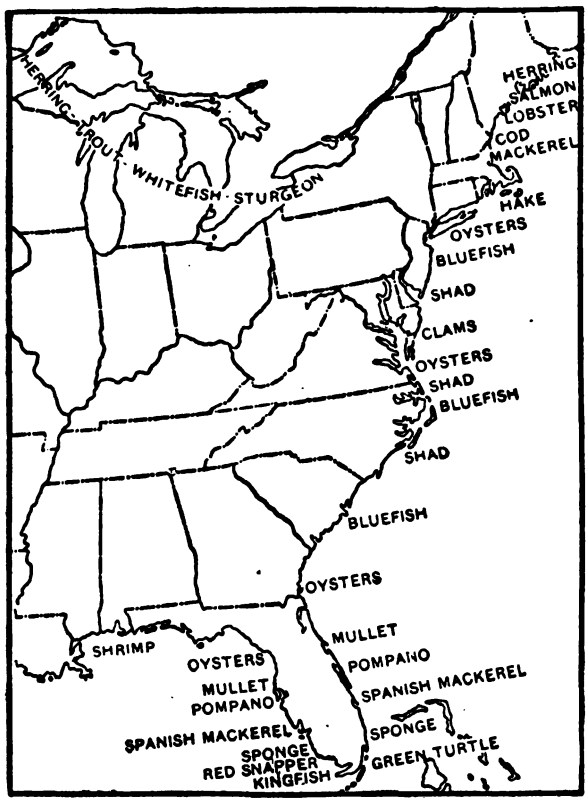


FIG. 48. Fisheries of the Atlantic coast and the Great Lakes.

Fisheries.— Fishing on a commercial scale is carried on from many points on the coasts of the United States and on many inland streams and lakes. The North Atlantic coast, the Great Lakes, the Columbia river, and the Alaskan rivers are important sections. The value of the products of the fisheries has exceeded $80,000,000 in recent years. About two fifths of the products are furnished by animals other than fishes, such as clams, mussels, oysters, lobsters, shrimps, and sponges, and by whale products and fur-seal pelts. The leading species of fish of commercial importance are salmon, cod, shad, mackerel, haddock, and herring.

The **salmon** is the most valuable river fish. The fisheries on the Columbia river are the largest industries of the kind and about 30 million pounds of canned salmon are exported each year. The salmon fisheries of Alaska now produce over 100 million pounds annually.

The **cod** is caught on the Grand Banks with hook and line. Boston and Gloucester, in Massachusetts, send out the largest fleets of fishing vessels. Most of the fish are salted and dried; some are shipped fresh; while from a considerable portion the bones are removed, the flesh being packed in boxes as " boneless cod."

Oysters are found in the coast waters, the greater part being taken in Chesapeake bay (Lynn Havens), in Long Island sound, in Cape Cod waters, and in the inlets of the New Jersey coast, while the Gulf and South Atlantic states produce about the same quantity as does Massachusetts. The Pacific coast produces oysters entirely from planted beds. Clams are dug out of the sand and mud at low tide. Lobsters are caught in traps along the rocky shores of New England. The oyster is the only shellfish exported to any extent.

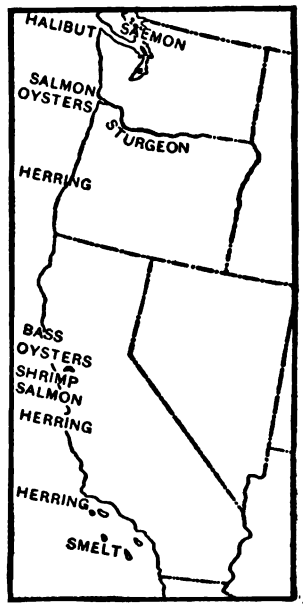


FIG. 49. Pacific coast fisheries.

QUESTIONS. — (1) What conditions are needed for the raising of cattle? Where are these conditions found? (2) What is the place of the United States in cattle raising? (3) State all the products derived from a cow. (4) What states lead in dairy products? Why? (5) How many eggs do you think are consumed in a great city like New York daily? (6) How is such a city supplied with dairy products? (7) How do you imagine London is supplied with dairy products? (8) Tell how each part of a hog is utilized. (9) What states lead in hog raising? Why? (10) What countries lead in sheep raising? Why? (11) Which states are best adapted to sheep raising? Why? (12) What is the place of the United States in wool production? (13) Why are Australia and South Africa great sheep-raising countries? (14) Where will Australia find markets for her mutton? (15) How will the meat be transported to these? (16) Where are the chief fisheries in this country? (17) What fish products are used in your home? (18) How are cod, salmon, mackerel, and herring taken? (19) What are the leading varieties of shellfish? Where are these found? (20) Why has salmon become so important a fish product?

CHAPTER VII

MINERAL PRODUCTS OF THE UNITED STATES AND WORLD AREAS OF PRODUCTION

Not content with taking from the earth the product of her soil, restless man delves deep beneath the surface in search of her mineral resources. Without these, especially coal and iron, civilization could make little progress. All minerals are classified either as **metals,** like iron, gold, copper, and lead; or as **non-metals,** coal, granite, and salt. We have noted that mountainous regions are most noted for their stores of minerals.

Iron. — Iron, the most important of the metals to man, is one of the most abundant and most easily procured. It is found in the rocks of all parts of the earth. Aluminum is the only other metal that is more abundant, but it cannot equal iron in usefulness. In many places iron occurs in great beds of ore. This iron ore is what is called an **oxide;** that is, it contains oxygen gas which must be driven off by heat before we can obtain metallic iron. Coal is needed to supply the heat, so that only those beds of iron ore can be worked which are within easy reach of beds of coal. Thus, in the Rocky mountains, there are almost inexhaustible supplies of iron, often of a high grade, which are at present of no value whatever.

Iron is found in nearly every state, but can be profitably mined only where it is of good quality and favorably situated for transportation to manufacturing centers. If the ore contains sulphur or phosphorus, if it lies too deep in the earth, if it contains too many impurities, or is too distant from the coal and the limestone necessary for smelting, the expense of mining is generally too great to make mining profitable.

There are five ranges of hills south and west of Lake Superior, in the states of Wisconsin, Michigan, and Minnesota, which produce nearly three fourths of all the iron ore used in this country. Alabama

is the next largest producer of iron ore and has the necessary coal right at hand. Many other states having convenient coal deposits produce iron ore. Pennsylvania, Tennessee, and West Virginia rank next to the states of the Lake Superior region. The Appalachians contain an abundance of coal, while the Lake Superior ore can easily be transported in lake vessels to the vicinity of coal mines. In this latter section the ore is mined and handled with marvelous cheapness. As it lies near the surface, it is loaded directly into " hopper " cars by means of steam shovels. These cars run out on trestles built along the border

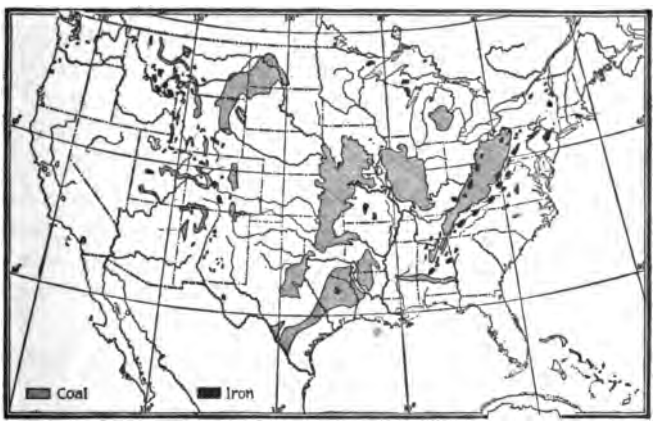


FIG. 50. The great coal and iron fields of the United States.

of the lake; the bottom of the car is drawn aside, and the load of ore drops directly into huge pockets or bunkers, from which it slides through a chute into the holds of vessels moored alongside. But a few seconds are required to unload a car, and a 6000-ton barge can be loaded in two hours. These barges, on reaching their destination at Chicago, Cleveland, or other steel-manufacturing towns, are unloaded by means of steam scoops which dip down into the holds of the vessels and transfer the ore to cars which run to the smelting furnaces.

The iron industries of the country are carried on mainly in the coal regions, for the reason that it is cheaper to take the ore to the coal than it is to take the coal to the ore, since it requires more than two tons of coal to smelt a ton of ore. Many towns in Illinois and Ohio

bordering the Great Lakes are engaged in the iron and steel industries. Pennsylvania is the leading state in the production of these articles, because she has the best coal for the purpose. The coal is used in the form of coke and is obtained by heating soft coal. The Connellsville district near Pittsburg is the chief coke-producing region of the world. Owing to this fact, Pittsburg has become the center of the largest iron and steel manufactures in the world. More than one third of the world's supply of metal products is made in the United States, and of this third Pennsylvania produces one half.

The World's Supply. — Germany and Great Britain are the largest iron miners and smelters outside of the United States, but this country produces much more than both of them combined, and in fact nearly half the total product of the earth. There are large deposits in some other countries, as in China, for instance, but so far they have been little worked, and the three countries named produce five sixths of the world's supply. Belgium, Spain, and Sweden contain masses of high-grade ore.

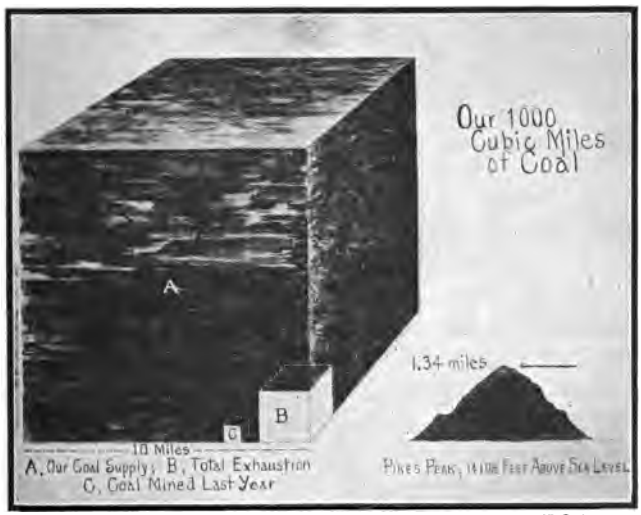
FIG. 51. The world's iron and steel production.

Coal. — Coal is vegetable matter made by the aid of heat, moisture, and pressure into a black combustible mineral. Coal beds vary greatly in thickness. Layers of rock divide them into veins varying from a few inches to ten or twelve feet in thickness. A vein less than three feet thick is rarely worked on account of the difficulty and the cost. In some of the English mines which have been worked for many years, the remaining coal is so deep that it does not pay to mine and raise it to the surface. A vertical shaft is sunk into the earth until coal is found. The first bed reached is called the first level. The shaft may be sunk downward through various kinds of rock, and many beds, or "levels," of coal may be found. Coal varies in hardness and quality. The hardest is called **anthracite**; the softer varieties **bituminous.**

Anthracite and Bituminous Coals. — Anthracite, or hard, coal is nearly pure carbon and burns with very little flame and smoke. Bituminous, or soft, coal contains a large amount of volatile matter

and often burns with a bright flame, giving off soot and smoke. Hard coal is highly valued for heating purposes and for use in cities and in locomotives where smoke is objectionable. There are many grades of bituminous coal, some of which are valuable for coke and others for the manufacture of illuminating gases and for use in furnaces and forges. As coal is expensive to transport, it is a great advantage to have a supply in different parts of the country. Nations that import coal buy from the nearest market. Canada, Mexico, and the Spanish republics import a small amount of American coal, and some is sold to steamships of foreign nations visiting our ports. Anthracite coal is shipped to all parts of the country east of the Rocky mountains.

FIG. 52. Where the world's coal is mined.



From National Geographic Magazine, Washington, D. C. — copyrighted 1914, diagram by R. W. Parker.

FIG. 53. A diagram showing the wonderful coal supply of the United States.

The coal fields of the United States cover about 500,000 square miles and are widely distributed. The Appalachian region covers

about 70,000 square miles and is the most valuable. It extends from Pennsylvania to Alabama and includes, in eastern Pennsylvania, nearly all the anthracite coal of the country. The interior region embraces the entire Mississippi valley and the coal fields of Michigan. It contains over 100,000 square miles. The western region, including the western states and Alaska, covers about 130,000 square miles. Coal is profitably mined in about 30 of the states. *Figure 53* shows the extent of our coal resources and the amount already mined.

The states leading in coal production are Pennsylvania, from which 90 million tons of anthracite are taken yearly, West Virginia, Illinois, Ohio, Kentucky, Alabama, and Indiana; these produce annually half the entire output of 30 states. Colorado and New Mexico produce small quantities of anthracite coal, which is shipped as far east as Chicago and commands a high price.

FIG. 54. 500 million barrels of petroleum are supplied every year by these countries.

The World's Supply. — Europe has about 60,000 square miles of coal fields and India 40,000. The amount of coal mined every year in the United States is now about 500 million tons, while Great Britain, with less than 10,000 square miles of coal area, mines about one half as much, and Germany, with less than 21,000 square miles, mines over 200 million tons. The product of the other countries ranges from 40 million to less than 1 million tons. China, with its immense beds, produces very little coal. Why?

Petroleum. — Rock oil, or petroleum, is also a product of the buried relics of the forests of past ages. Extensive underground deposits of this oil are found in many parts of the earth. Petroleum is obtained by boring wells into the earth, sometimes to a depth of many hundreds of feet. Iron pipe is driven into the well as fast as it is bored. The oil is often found under such enormous pressure that, when the drill strikes it, it spouts upward several hundred feet into the air. Such wells, called "gushers," have been known to yield 50,000 barrels of oil a day for several months. When a well ceases to flow it sometimes is revived by exploding dynamite at the bottom of it. This is called "shooting a well." The crude oil from the wells

is stored in large steel tanks, from which it is piped to the refineries at Cleveland, Chicago, Baltimore, Buffalo, New York, Philadelphia, and Kansas City. The pipe system of the Standard Oil Company, with its main arteries and branches, is about 40,000 miles long. Cylindrical " tank " cars are also used in transporting oil. The refined oil for domestic trade is shipped in barrels and cans. For the foreign trade it is carried in tank steamers built for this purpose, which distribute the product to every part of the world. The pipe line and

FIG. 55. Great steel cranes which transfer ore from the steamer to the freight car or the furnace.

improved methods of manufacture save transportation expenses and keep the price of kerosene at a very low figure.

Besides several grades of illuminating oil, or kerosene, there are some 200 additional products made from petroleum. The most important of these are gasoline, naphtha, benzine, and vaseline. Others are lubricating oils, paraffine, soap and candles, coal tar, drugs, perfumery, wax, pitch, coke, and asphalt.

Oklahoma ranks first in the quantity of oil produced, followed by California, Kansas, Texas, and Illinois. Nine other states produce petroleum. As illuminants, gas and electricity have largely taken the place of petroleum, just as that oil took the place of whale

oil and candles. Russia a few years ago produced more oil than the United States, but the Russian product has fallen off greatly.

The World's Supply. — Though it occurs in many regions, nearly all the petroleum used comes from the United States and from Russia, whose supply is found near the Caspian sea. The total annual production of the world is over 500 million barrels, of which the United States yields 335 million and Russia about 70 million. Oil is one of our largest exports, ranking fifth in value. Every country of the world except Russia and Turkey is a purchaser of American oil. Great Britain, Germany, and Holland are the largest customers.

Gold and Silver. — The native place of gold is in the quartz of the rocks; but where these have been worn away by the forces of erosion, the gold has been carried down by the rivers and sunk into the sands and gravels on their bottoms. This is called **placer gold** and is obtained by miners from the dry beds of old streams. Though much gold has been found in the beds of streams and in the sands along the seashore, these deposits are soon exhausted, and mining must be resorted to. Gold is always found pure in nature, but silver occurs mixed with copper, lead, sulphur, and other elements. Silver is extracted by first grinding the ore to powder and then mixing it with water and mercury. The mercury absorbs the silver. It is afterward separated by heating, the mercury passing off as vapor, leaving a residue of silver.

The World's Supply. — These metals are of importance to commerce chiefly from their use as money. An ounce of gold is worth about twenty dollars and an ounce of silver from fifty cents to a dollar. They are also used in the manufacturing arts to a great extent, and in the form of money are exported to pay trade balances; that is, the excess value of the imports of any country over its exports. Gold coin is now the standard money of most nations. The production of gold varies greatly from year to year. The Transvaal, in South Africa, now leads the world in gold production, but at different times the Guinea coast, Australia, Venezuela, and California have stood first.

Our chief states and territories producing gold are Colorado, Alaska, California, and Nevada. These produce about $70,000,000 of our annual product of $90,000,000.

The United States and Mexico lead in the production of silver,

our annual product averaging about $40,000,000 in value. Silver and gold are both imported into the United States, because we sell more goods to foreign nations than we buy of them, and the difference is paid in the precious metals. The manufacturing of silver and gold

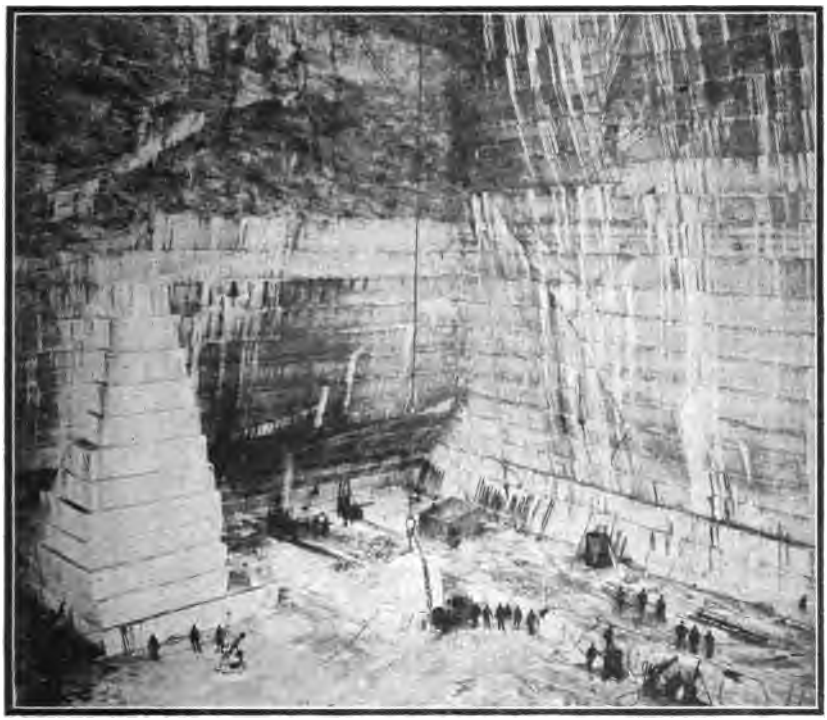


FIG. 56. A view in a Vermont marble quarry.

into various articles of use and ornament is an extensive business in several parts of the country.

The world's product is increasing every year and of late years has been valued at over $460,000,000.

Copper. — Copper, a metal of great importance in the industries, is very abundant in the United States. Its peculiar value lies in the fact that it is one of the best known conductors of heat and electricity, and can be drawn into strong wire. It is found in several localities,

the great yield being in Arizona, the Butte region in Montana, and the Lake Superior region in Michigan. The mines here have been worked for more than 60 years and are now over a mile deep.

Copper is used to transmit electric power, and in coinage, in sheathing ships, and in making the important alloys, brass and bronze. Brass is an alloy of copper and zinc and, next to iron, is the most useful metal known. Bronze is made from copper and tin and is used in making articles like statues, bells, and propeller wheels, where hardness and durability are required.

The World's Supply. — The great demand for copper for electrical uses in recent years has led to enormous increase in its production. The world's product is not far from one million tons, of which this country yielded more than half, amounting in value to over $100,000,000. Other leading copper countries are Spain, Portugal, Chile, Australia, and Japan. About half of our own product comes from the Butte region in Montana and from the Lake Superior region.

Aluminum. — This light, white metal is the most abundant known, forming about one fifteenth of the earth's crust. Powerful currents of electricity are needed to extract it from its compounds. Since it does not corrode in air, it is coming into use for many purposes. One of these is to replace copper as a conductor of electricity. Over 20 million pounds are produced in the United States every year.

Lead comes chiefly from the states that produce silver. Some is exported to Japan and Cuba, but a far larger amount is imported from Mexico, Canada, and Chile. Lead is extensively used in manufacturing pipe, paint, type metal, and electroplates for the printing of books and newspapers.

Zinc, a soft metal resembling lead, is found abundantly in Missouri, Kansas, New Jersey, and Pennsylvania. Sheet zinc, an article of common use, and zinc white, a kind of paint, are made from this metal.

QUESTIONS. — (1) Why is iron the most useful metal? (2) Mention the uses made of this mineral. (3) What part does the United States play in the world's production of iron? (4) Where are the chief coal fields of the world? (5) Why is iron always brought to the coal fields for smelting? (6) What states lead in the production of iron? Of coal? (7) What is coke and what are its uses? (8) What circumstances have made Pittsburg the center of the greatest iron and steel industries? (9) What are the most important products made of steel? (10) Mention six products manufactured from

petroleum. (11) Where is the world's supply found? (12) How is the oil secured from the rock? (13) What regions lead in the production of gold and silver? (14) What part does the United States play in furnishing the world's supply? (15) What are the leading copper countries? (16) Why is this metal so valuable a product? (17) Tell about the production and uses of zinc, lead, and aluminum. (18) Why have the Lake Superior iron ores been more worked than those in the Far West? (19) Would the loss be greater if all the gold and silver, or all the iron and copper, in the world were taken away?

CHAPTER VIII

THE GREAT INDUSTRIES OF THE UNITED STATES

The Growth of Industries. — The idea of division of labor among groups for the purpose of getting work done more quickly, more cheaply, and more efficiently helps greatly to develop the industries of a region. The facts that the United States is in the temperate zone, and that it is peopled by a highly civilized body of men, mean that we shall find great industries and wide trade development within her borders. There are no important industries found anywhere else on the earth except in the temperate zones. When civilized individuals began to apply the idea of division of labor, each group naturally devoted its time and energy to those industries in which it was most proficient. If a certain region had very fertile soil and markets which were near by, its people naturally took up farming; if it abounded in ore, mining was pursued; if it had water power, the group made a specialty of manufacturing. So the whole world has come to be divided into great regions of industry which are determined by the natural resources and the civilized idea of sharing the world's work. In this way particular sections of the United States are devoted to particular industries, all aiming to supply the food, clothing, and shelter that man needs.

Areas of Production. — We have learned that the United States comprises several natural divisions differing widely in surface, soil, climate, and production. We may also divide the country according to productive areas, or sections (*Figure 58*), in which one or more products are more abundant and valuable than in other sections. We find that one part of our country is devoted mainly to raising cotton; another part to corn and wheat; another to mining and grazing; another to lumber, grain, and fruit. This division into areas of production depends mainly upon soil and climate, upon the presence of minerals, forests, or fisheries, upon nearness to the seacoast or to large

cities, and sometimes upon a combination of two or more of these circumstances.

Rice and sugar can be grown only in the swampy lowlands of the coast plains, while cotton flourishes best on the river bottoms and uplands. Fruit and vegetables are grown in large quantities on the coast plain, because the markets of the large cities are easily accessible. Industries connected with metals, forests, and fisheries are usually found near the places where the raw materials used can be obtained.

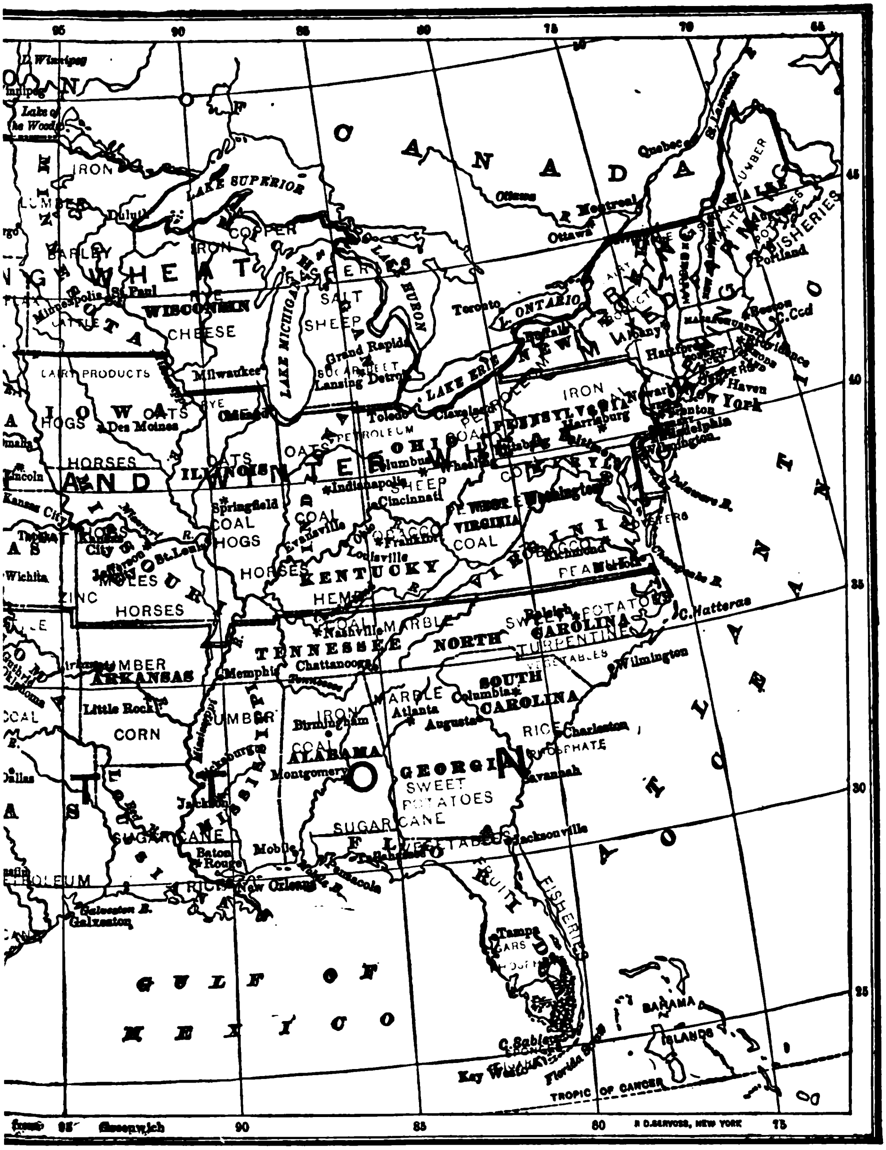
Classes of Products. — Many products, such as fruits, vegetables, fish, game, and poultry, are directly useful to mankind as foods,

FIG. 57. Hulling peas on a modern farm by machinery. The large silos each hold 200 tons of silage, or cattle food.

and are sent to market in the form in which they are first obtained; but by far the greater portion of the products of our country is **raw materials** and must be manufactured. Wheat, cotton, wool, lumber, and iron must be made into flour, cloth, furniture, tools, and other useful forms before they can serve for food, clothing, or shelter, or be utilized as comforts, conveniences, or luxuries. When raw materials have been altered in any way to fit them for our use, we speak of these new forms as **manufactured goods.**

There are some products which are produced, bought, and sold that are neither foods, raw materials, nor manufactured goods; among these are horses and mules used for driving and draft purposes, wild animals kept on exhibition, flowers and feathers used in their

FIG. 58. MAP STUDIES. — (1) Name the six important productive areas of the United States. In what natural divisions of the country does each lie? (2) Name the states that lie entirely in each region. (3) Make a list of five states that are noted for lumber; five that raise sheep; five that produce coal and petroleum. (4) Where is salt obtained? Flax? Silver? Lead? Sugar-beet? (5) Where are the important fisheries? In what sections do you find the most fruits and vegetables? (6) Locate the following towns; tell in what area of production each is: Cheyenne; Denver; St. Louis; Omaha; Louisville; Atlanta; Richmond.



MAP STUDIES FOR EACH STATE. — (1) In what area of production is this state? Name its other leading products. (2) Which of these products are Animal? Vegetable? Mineral? (3) Name some of the uses that are made of each of these products. (4) Has this state any coast, or navigable rivers? Of what value is each in carrying the products of the state? What cities of this state are situated along rivers? What can you tell of the industries of these cities? (5) What is the chief city of this state? What can you tell of its industries?

natural forms for ornament, and trees, bushes, or other nursery stock which are set in the earth either for ornament or for use. But these articles are unimportant as compared with any one of the other three classes.

Location of Industries. — It is evident that the farmer, the gardener, the miner, the fisherman, and the herdsman must find employment where soil, climate, or other natural resources supply the basis of their respective industries; but for the mechanic, the manufacturer, the merchant, and the professional man, the place of his employment is fixed by other considerations. The natural location for manufacturing industries is in or near the region which produces the raw materials used. This is especially true where the materials are bulky and expensive to transport. Coal, iron ore, wheat, cattle, and lumber are materials of this sort. Iron and steel are made near the mines, flour near the wheat fields, and furniture and farming implements near the forests. Canneries and condensaries are more profitably operated when near the sources of fruits, vegetables, and milk, as these materials are perishable and cannot be transported for any considerable distance except at great expense. We have seen that other considerations which affect the location of manufacturing industries are water power, cheap fuel, and conveniences for transporting and marketing the products. Thus we often find factories standing near rapids and waterfalls, on the banks of rivers and harbors, and especially in and near the great cities and seaports.

In New England we find cotton and woolen mills as well as other factories built near the falls of rivers, the great factor being cheap power. Workmen and supplies must be brought from a distance and the manufactured goods shipped away. As all this costs a great deal, many cotton manufacturers have found it more profitable in recent years to move from New England to southern cities near the cotton fields. Sugar and oil refineries are located in large seaports on account of the saving of freights in receiving and shipping goods by water.

1. **Agriculture.** — Farming is one of the chief occupations of our country. It furnishes, directly or indirectly, most of what we eat and wear. Other needs are less important than food and clothing. More than one third of the laborers of the country are engaged in agriculture. The total value of farm lands is now estimated at nearly

$30,000,000,000. About one half the farm lands, or a little more than one fifth the area of the country, is cultivated. The importance of the United States in farming is due to (1) the extent, variety, and high fertility of its soils; (2) the favorable climate of most sections; (3) the facilities for marketing products; (4) the energy and ability of the farming people as a whole; (5) the activity of the national and state governments in helping the farmer by introducing new plants, better seeds, and scientific methods of farming.

2. **Dairying and Grazing.** — Cattle raising in this country has gradually extended westward, being crowded out in the east by agriculture. The building of the railroads and the establishment of a market for the western stock in the more densely populated districts of the East did much to develop the industry. Cattle are raised for beef and dairy products, horses for driving and drawing, sheep for mutton and wool, and swine for pork. This industry, like others, naturally centers in those regions where conditions are especially adapted to its success.

FIG. 59. The lumber industry is important in the western coast states.

Cattle raising cannot be driven out from the region of the Great Plains by ordinary agriculture, for the rainfall is insufficient for crops. When farming, with the help of irrigation, becomes more profitable than grazing, then grazing as a great industry will disappear.

3. **Lumbering.** — The forests of the United States have been a chief factor in the progress of the country. They have furnished firewood, and materials for building, furniture, implements, fences, vehicles, utensils, paper, posts, ships, railroad cars, bridges, sidewalks, cross-ties, and poles. Though our dependence on the forests for material for many things is less than formerly, the yearly drain on the

forests has increased with great rapidity. The United States is the leading wood-producing country.

Forests still cover about one fourth the area of the United States. Lumbering is carried on in every state, but the production varies greatly. Great changes in the distribution of this industry have occurred, for as the forests in one region have become depleted, new areas have been opened up. For many years the northeastern states led in lumbering, particularly Maine and New York. Then the forests of the Great Lakes region were opened up; at present the southern states contribute most of the lumber output, but the industry is expected to reach its climax there within a few years, and already the Pacific states are large producers.

4. **Fishing Industries.** — Most marine fishing industries are the result of (1) the existence of extensive shallow waters off shore to serve as feeding and breeding grounds for large numbers of fish; (2) convenient harbors for large numbers of fishing boats; and (3) nearness to the large centers of population. With all these advantages the New England coast always has been noted for its fishing interests, while much of the Pacific coast, with few harbors and with deep waters relatively near shore, has no important fishing fleets.

Where poor soil, rugged surface, or rigorous climate in the United States has made farming in coastal regions unprofitable, the people have turned to the ocean for a living. They become fishermen, develop into expert sailors and navigators, and supply men for the great merchant fleets.

On account of the foregoing conditions, Gloucester and Boston are the most important fishing ports in the United States to-day. The salmon industry of the Pacific coast is centered in Alaska, about the shores of Puget sound, and on the Columbia river.

The whaling industry, once so important in New England, suffered a rapid decline in the third quarter of the last century, owing to the growing scarcity of whales and to the fact that the discovery of petroleum in Pennsylvania and other states diminished greatly the demand for whale oil. It is still active along the Pacific coast.

5. **Mining and Quarrying.** — These industries furnish employment to hundreds of thousands of people and supply material or fuel for many other industries. In general the distribution of mineral

deposits controls that of mining and quarrying, but whether or not a given mineral deposit can be worked profitably depends on several things. Chief among these is its **size,** because in many places minerals of value occur in quantities too small to mine. A very small deposit of gold would justify the opening of a mine, while a vastly larger deposit of iron would not. The **quality** of the mineral is important. The United States contains billions of tons of low-grade ore that cannot be mined with profit. The **location** is very important in the case of minerals that are abundant and cheap. Iron ore which could be mined profitably if in Pennyslvania, probably could not be if in Utah. On the other hand, where the mineral is of great value, location becomes less important; men go willingly to South Africa or Alaska after gold. Cheap minerals are mined only where they lie in **favorable positions,** rather near the surface; those of greater value, like silver and copper, justify deeper mines and greater expense. The output of many mines and quarries is affected greatly by **market conditions.** This is shown in a general way by the fact that the total value of the mineral products of the United States declined $500,000,000 in 1908, largely as a result of the business depression which began late in 1907.

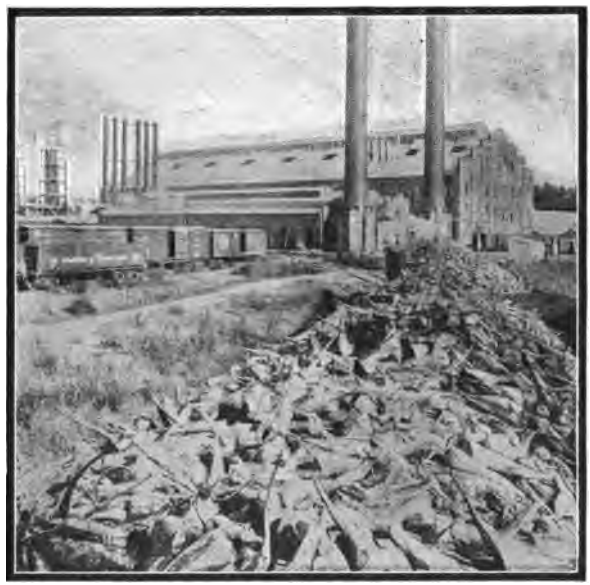


FIG. 60. A large beet-sugar mill.

6. **Manufacturing.** — The United States is one of the chief manufacturing nations of the earth. It was not so at first, for the

settlers had to get their living out of the country around them, and thus could not do much manufacturing. But gradually there came about a division of labor, so that now certain parts of the country do most of the manufacturing, while other parts raise food and trade it for the manufactured products.

The northeastern states, with their numerous population, are the chief manufacturing regions. New York, Pennsylvania, Illinois, and

FIG. 61. Steel furnaces similar to these dot the eastern United States.

Massachusetts are the states whose manufactures have the greatest value.

When we try to discover why a manufacturing industry is located in one place rather than in another, we find several reasons. The industry (1) must be near to materials, near to fuel, and near the market. In this way cost of freight is saved. (2) It must be near water power if possible. Water power is cheap, and the manufactory using it spends much less than one which is forced to use coal. (3) A favorable climate is needed. It must be neither too hot, as this would affect the employees, nor too cold, necessitating the spending of too much

money for heating the buildings. (4) It needs an adequate supply of labor. (5) It needs money available for investment. A very poor country cannot have many manufactures, because the people have no money to lend for the building of factories and the purchase of machinery.

7. **Commerce.** — Millions of busy people all over the world are not engaged in changing any of the earth's products so as to accom-

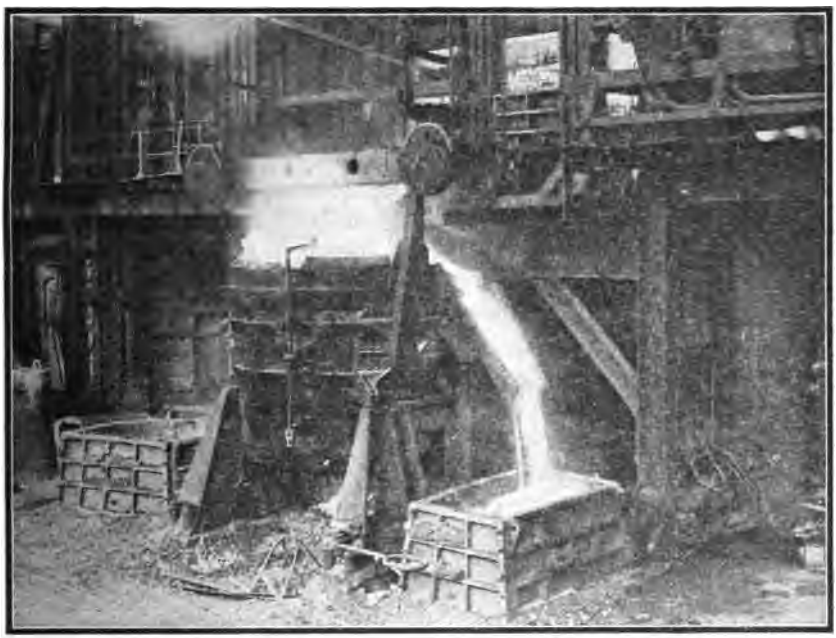


FIG. 62. Open-hearth pouring in a great Pennsylvania steel manufacturing plant.

modate them to man's use, but these people are engaged in buying and selling the products of other workers. They make up the great merchant class, they exchange the products of one country, or section, for those of another. This makes commerce or trade itself one of the world's industries.

8. **Transportation.** — We must call this work an industry also, although no direct product is the result. The millions of people en-

gaged in this have to do with the carrying of people and products from place to place over this huge checkerboard that we call the earth. The crew of the *Imperator* numbers over 1,200 men and women; they are all engaged, you see, in the transportation industry.

Industries of New York City. — New York City has 34,000 factories, with 682,796 employes. The largest manufacturing interests in New York City are **clothing** and **millinery,** in which more than 250,000 persons are employed. The manufacture of women's clothing employs 100,000 workers, men's clothing nearly 70,000, women's white goods 14,000, and millinery 12,000.

Metal working is second in importance, with more than 100,000 employes. The manufacture of paper goods stands third, with 75,000 employes, of whom 60,000 are in the printing and publishing industry. The manufacture of food, liquor, and tobacco comes fourth, with 22,000 employes in the cigar industry and 7,000 in bakeries.

More than 55 per cent of the total factory population of the state is in this city. From one third to three fourths of the total force in every industrial group, excepting that of paper making, are employed here. The city holds first place in 144 of the 466 industrial groups, second place in 20, and third place in five.

Manhattan has 68 per cent of the employes in the city, Brooklyn 22 per cent, Queens 5 per cent, Bronx 4 per cent, and Richmond 1 per cent. Of the 37,000 textile-mill operatives in the city, 14,000 are employed in Brooklyn. The most important industries in the Bronx are metal working and the manufacture of pianos and textiles. In Queens and Richmond metal working is the leading industry.

In the entire state of New York there are 148,851 factories, employing 1,236,150 persons, of whom 347,601 are women and 13,519 are children. Estimating the state's population at 9,500,000, these figures give an average of one factory worker out of every eight of our total population.

REVIEW QUESTIONS. — (1) What are the three great needs of man? (2) Why should the great industries of the earth all be found in the temperate zones? (3) Show how the industries were developed as a result of the division of labor. (4) What is meant by productive areas? (5) From *Figure 58* name the six leading productive areas of the United States. How are these areas determined? (6) What conditions will lead people to take up farming; mining; fishing; lumbering; manufacturing? (7) State the conditions that make agriculture the leading United States industry. (8) How is the loca-

tion of an industry affected by transportation? By fuel and water power? (9) What is the difference between raw materials and manufactured goods? (10) How do you account for the large number of industries carried on in some of our cities? (11) What industries have you observed in New York City? (12) Can you give any reasons why the manufacture of clothing and millinery should be the largest industry in New York City? (13) Give a leading industry of Pennsylvania; Iowa; Michigan; Mississippi; California; Texas; New York.

CHAPTER IX

GREAT AMERICAN MANUFACTURES

The United States at the present is far in the lead among the manufacturing countries of the world. This position is due to the fact that our people possess in great abundance nearly all the raw materials of manufacture, while other countries have to obtain many of theirs from abroad. The great sources of power — coal, petroleum, and rapid streams — exist here in like abundance.

The great industrial growth of the last 50 years in the United States has been due to (1) the increase of population; (2) the improved conditions for borrowing and lending money and the higher standards of living of the people; (3) the increasing supply of raw material; (4) the improvement of transportation facilities; and (5) the growing demand abroad for American goods.

FIG. 63. A general view of a great Pennsylvania steel plant.

The Location of Industries. — It has been mentioned that the location of manufacturing industries is dependent mainly on the nearness of raw materials and on transportation. Many manufacturing centers specialize in a few products. Thus Grand Rapids, Mich., is famous for its furniture; Brockton, Mass., is the leading boot and shoe center; and Peoria, Ill., has the largest distilleries. In such

cases as these the reasons for the development of special industries in certain places are clear; in others the causes are not so easy to trace. In general the factors influencing the location of manufacturing industries are those we have studied in the preceding chapter: (1) the distribution of raw material; (2) the command of power; (3) the nearness to market; and (4) a supply of labor.

The Growth of Manufactures. — The products of the United States are more than twice as great as those of Great Britain or Germany, the second and third in rank. From 1860 to 1900 the value of our manufactured products increased from about two billions of dollars to thirteen billions. From 1900 to 1905 they increased about two billions more. The following table gives in round numbers the values of the classes of manufactured products which exceeded $100,000,000 in 1909.

Iron and Steel Goods	$1,376,000,000
Meats (all sorts)	1,370,000,000
Textiles (cotton, woolen, silk, linen)	1,300,000,000
Foundry Products and Machinery	1,228,000,000
Timber and Lumber Products	1,155,000,000
Clothing	952,000,000
Flour and Mill Products	883,000,000
Boots, Shoes, Leather	882,000,000
Paper, Newspapers, Books, Printing	714,000,000
Liquors	578,000,000
Cigars and Tobacco	416,000,000
Bread and Bakery Products	396,000,000
Copper Products	378,000,000
Cars and Vehicles	292,000,000
Sugar and Molasses	279,000,000
Automobiles	250,000,000
Refined Petroleum	236,000,000
Lead Products	167,000,000
Illuminating Gas	166,000,000
Canning and Preserving	157,000,000
Agricultural Tools	146,000,000
Oil, Cottonseed	146,000,000
Patent Medicines	141,000,000
Confectionery	134,000,000
Paint and Varnish	124,000,000
Total Value of all Manufactures (1909)	$20,670,000,000

Iron and Steel Products. — The chief iron and steel manufactures of the country are located in western Pennsylvania, along the Great Lakes, and in Alabama. The products included under this head are of great variety. Included under the fourth head in the above list are cast-iron products of every sort and all classes of machinery except sewing machines, typewriters, and a few other special products. It includes steam engines and boilers, locomotives, and all machinery

FIG. 64. A scene in a great American mill where railroad tracks are manufactured.

used in mills and factories except the classes mentioned. The number of foundries and machine shops is far greater than that of the plants manufacturing more bulky iron and steel products. Our larger cities, on account of the market that they afford for these products, support many foundries and machine shops producing structural iron work, rails, machinery, tools, hardware, tin plate, and various small products.

In melting iron ore, it is mixed with limestone and coal or coke.

The mixture is then heated in the furnace, the metal iron is released from the ore and is drawn out into molds, being then known as **pig iron.** At Birmingham, Ala., iron ore, coal, and limestone are found close together, and this fortunate combination has made this city an important center of the iron and steel industry.

Meat Products. — The slaughtering and meat-packing industry tends to keep close to the great stock-raising areas (see *pages 84* and *85*) in order to avoid freight charges or waste material, and to prevent the animals losing weight on the way to the slaughtering centers. The slaughtering and packing industries followed the grazing area westward. Chicago still leads in the industry, contributing nearly one third of the total value of the products for the country; but the second and third centers are found on the Missouri river, at Kansas City and South Omaha.

Very noticeable in this industry is the fact of the complete utilization of the by-products of the slaughter-houses. Among the things manufactured from these products are soap, candles, gelatine, glycerine, ammonia, knife handles, and fertilizers.

Textile Manufactures. — The industries of this group furnish the materials for nearly all our clothing and for many household articles, such as rugs and carpets, draperies and bedding. Vegetable and animal fibers constitute the raw materials used by the 44 textile industries. The principal industries are based on cotton, wool, and silk. Various products are made also from flax, hemp, and jute. Over two billion pounds of raw cotton are consumed every year by the textile mills of the United States. Woolen manufactures include worsted goods, suitings, blankets, carpets, felt goods, and wool hats. Much wool is imported for the mills, which consume more than 500 million pounds annually. The leading manufacturing centers are the Middle Atlantic and New England states. The United States leads in the manufacture of silks and in the consumption of raw products; France follows. About 82 million pounds of raw silk are imported every year.

The silk mills of the United States are dependent entirely upon foreign countries for raw material. Mulberry trees could be grown and silkworms reared in this country, but the industry requires too much hand labor. The leading silk-manufacturing states are New Jersey, Pennsylvania, and New York. The development of this

manufacture has been enormous, owing to demand at home and the high protective tariff which kept out foreign products.

Lumber and its Manufactures. — Great quantities of lumber are manufactured in over 32,000 establishments in the United States into doors, blinds, sashes, interior finish, boxes, matches, wooden ware, and furniture. Great quantities are used also in building and in certain industries included in other groups, such as ship building and

FIG. 65. A freight pier at New Orleans filled with American merchandise consigned to South America.

the manufacture of carriages and wagons. Lumber products are manufactured on a commercial scale in every state, in marked contrast with the concentration of certain of the other greater industries, such as the manufactures of iron and steel and textiles.

Flour. — The value of the flour and grist mill products of the United States has increased rapidly with the growth in the production of cereals, and now amounts to more than $883,000,000 yearly. Two thirds of the value of the output of these mills is in wheat flour. Other

important products are rye and buckwheat flour, corn meal, and feed for animals. Flour and grist mills are distributed widely because, with the exception of a few large mills, they supply local demands only. Old branches of the industry have expanded toward the west, following the westward movement of the centers of production of the great cereal crops.

Paper and Printing Industries. — Printing and publishing are the most important and most widely distributed industries of this group, which includes also the manufacture of wood pulp, paper of all kinds, paper bags and boxes. One of the great uses of wood fiber is in the manufacture of paper. Formerly all paper was made from linen and cotton rags. The immense demand for paper in modern times has made it necessary to seek other materials, and at present much the greater part of our printing paper is made of wood pulp, the fibrous product of spruce, poplar, and some other trees. These are ground down to minute particles, which are converted into pulp by mixing with water. Michigan, Wisconsin, Massachusetts, and New York are states leading in paper production. Our great newspapers, consuming one third of all the paper manufactured, require every year the timber of an area as large as one of our small states.

The most important use of paper is for the making of books and newspapers. The large printing and publishing establishments are found in or near our largest cities, but every town has at least one printing office. This industry is more generally distributed over the country than any other industry except agriculture. Our annual paper output is nearly $270,000,000 a year, and this, together with the cost of printing presses, typesetting machines, engraving machines, and printers' supplies used every year, makes printing and publishing one of the great industries of this country.

Leather. — The United States manufactures more leather than any other country, using the skins of its own animals and many hides imported from South America. The shoe industry is the most important of the leather manufactures, but large quantities of raw material are used in making harness, saddles, trunks, bags, furniture, gloves, and belting, in binding books, and in other ways. The headquarters of the shoe industry is still in Massachusetts, though there are factories in many other states.

Automobiles. — The value of the automobiles made in 1900 was $5,000,000; in 1914, about $260,000,000. One million automobiles were in use in the United States in 1913, and of these more than a quarter of a million had been sold in the previous 12 months. Allowing $900 as an average price, this product represented a value of $235,000,000. Michigan, Ohio, New York, and Connecticut lead 17 states in the production of these machines. The value of those made in Detroit is more than one fifth of the total for the industry.

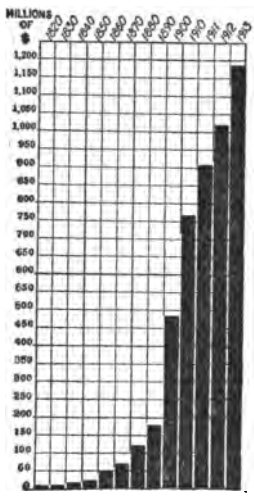


FIG. 66. This shows the amount of manufactured goods exported from the United States, 1820–1913. Note the years of greatest increase.

Nearly $40,000,000 worth of motor cars and like products was exported in 1914. Great Britain and Canada are the largest markets, but South America, Europe, and Australia are constantly buying more of the American output, which, through manufacture in large quantities, can be sold more cheaply than the foreign machines, even with the transportation charges added.

Tobacco Products. — These include cigars, cigarettes, chewing tobacco, smoking tobacco, and snuff. The value of the products increased from $30,000,000 in 1860 to $416,000,000 in 1914. The manufacture of cigars is distributed widely, Pennsylvania, New York, and Ohio leading. More than four fifths of the total output of cigarettes come from New York and Virginia. Missouri, North Carolina, Kentucky, and Virginia lead in the production of chewing and smoking tobacco.

Miscellaneous Manufactures. — Nine hundred sixty million dollars represents the combined value of many other manufacturing industries in the United States. Among those of greater value are agricultural implements; ammunition; brooms and brushes; buttons; coke; electrical machinery, apparatus, and supplies; fur goods; ice; mattresses and spring beds; musical instruments; photographic materials and moving-picture apparatus; rubber and elastic goods.

Manufactures. — We have said that the United States is by far the greatest manufacturing country in the world, the total value of

its products amounting to $20,000,000,000 annually. In respect to area we have to compare it with all Europe, and in respect to population with Germany and Great Britain combined. Great Britain is second in the value of its total product, Germany third, and France fourth. Note how the manufacturing areas (*Figure 58*) depend upon the areas of raw material and the coal and iron producing regions.

By-Products and Waste Materials. — We have noted before how nature so controls the earth that no atom is ever lost or wasted. Man, particularly in the four great world nations, is imitating nature in this respect. Use is made now of every part of the cotton plant. The seeds, formerly destroyed, now yield $150,000,000 worth of oil every year. Old tin cans, carpets, newspapers, dead animals, are all bought to-day and converted, especially in the United States, by manufacturing processes into all kinds of fresh products from steel to soap. Thousands of dollars are paid by contractors every year for the privilege of sorting the refuse and ashes at the New York City street-cleaning dumps. Thus there is little waste of anything that can be used, and every year we hear of some new process for the profitable employment of the waste materials of the world.

REVIEW QUESTIONS. — (1) Why is the United States a great manufacturing nation? (2) Where does it find markets for its products? (3) What is the place of the United States among the manufacturing nations of the world? (4) State once more the conditions that determine the location of manufacturing industries. (5) What great manufacturing industries do you observe being carried on in your city? (6) Name the five leading classes of manufactures. (7) What is meant by foundry products? (8) Which of the products of the manufacturing industries given on *page 95* do you make use of? (9) What is meant by textile products? (10) What section of the country leads in iron and steel manufactures? In lumber products? In slaughtering and packing products? In textile manufactures? (11) Where are the great centers of flour production found? Why? The leather-manufacturing center? The printing and publishing centers? (12) Why should the United States lead the world in automobile manufacture? (13) What is a by-product? (14) Can you think of any use made of sawdust, a by-product of all sawmills? (15) How are waste materials being conserved in your own neighborhood?

CHAPTER X

INLAND TRANSPORTATION AND TRADE ROUTES

The Reasons for Domestic Trade. — We have studied now the various physical features of the United States and have seen how these, in connection with the natural resources, determine the pro-

FIG. 67. A mode of freight transportation in the west. A double-header traction engine with its caterpillar train.

ductions of various sections. We have to examine next the ways in which these products of the various parts of the country are exchanged.

Domestic commerce, or exchange of goods within a country, arises from the fact that men differ in aptitudes and inclinations. They do not all pursue the same occupations. This fact, in addition to the climatic differences which control products, tends to develop trade

between the states. Finally, the facts that the country is well supplied with natural highways, such as rivers and lake chains, and that the different regions have been bound together by the most extensive system of railroads in the world, explain how there has come about, within the United States, trade of so great extent and variety.

The Exchange of Commodities. — We have already seen (*Figure 58*) how the entire area of the United States may be divided into six industrial sections, in each of which certain great agricultural industries are necessary to its prosperity. These sections are:

(1) The New England and New York section, noted for small farming and dairying products.
(2) The corn and winter-wheat belt, extending from the Atlantic to Kansas and Nebraska.
(3) The cotton belt in the South.
(4) The spring-wheat belt, reaching from the Great Lakes to Montana and Wyoming.
(5) The Plateau states, with stock raising and wool production.
(6) The Pacific coast states, noted for agricultural and lumber interests.

From this you can see that no one section can be independent, but that each is dependent upon the other sections for its maintenance, as to food supply, the raw materials needed for manufacture, and the finished product. This explains the great movement of products from one region to another which has become the extensive domestic commerce of this country. The characteristic industry of each section determines what it is to send out and take in. The eastern industrial sections will need food products and raw materials, and in return can give manufactured products. The great amount of wool clipped in the Plateau section is shipped east and west; California fruit finds an eastern market. The raising of cattle and hogs in the corn belt calls for a vast shifting of surplus products. The bulk of the domestic trade is always made up of the movement of a few great products like grain, cattle, cotton, lumber, coal, and iron.

Transportation of Products. — The movement of all these products depends upon transportation facilities, which are largely governed by the surface features of the sections. Rivers and river valleys, lake chains and trails are everywhere the natural highways

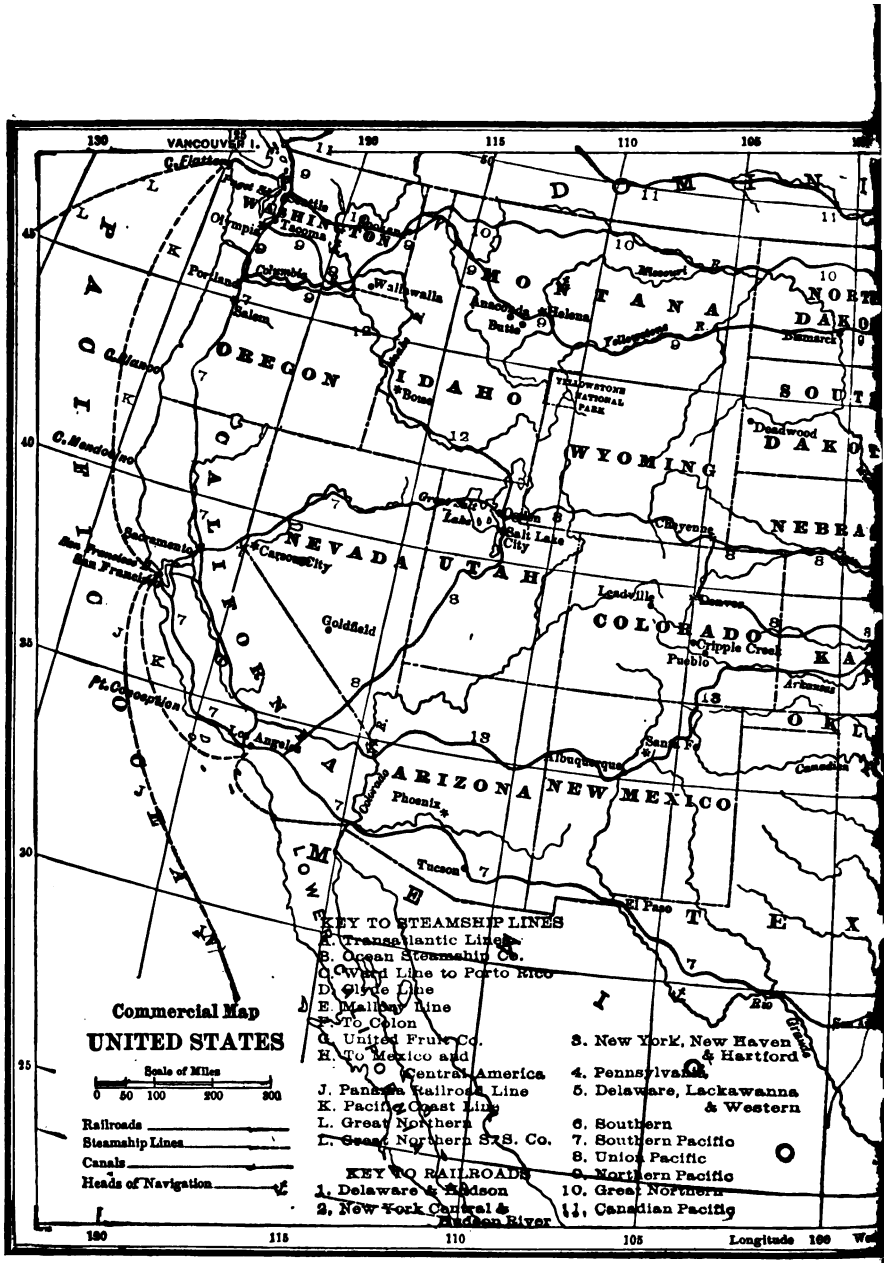
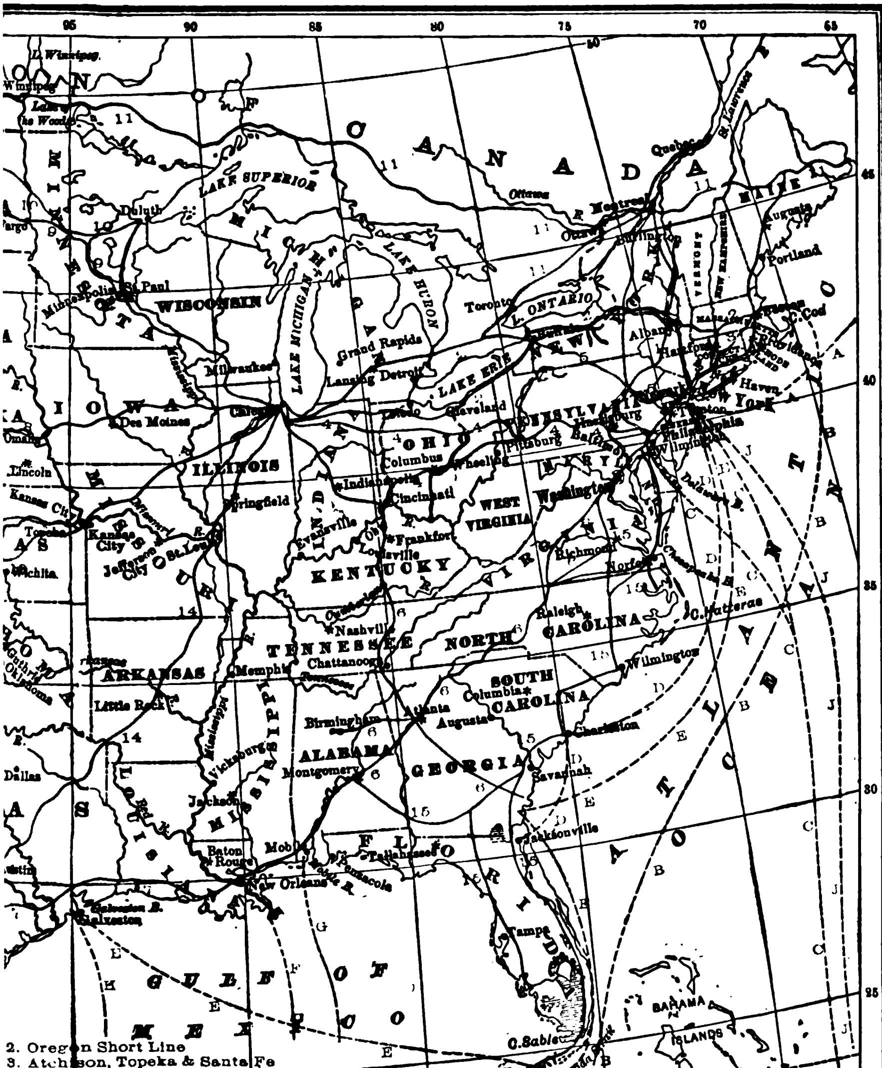


FIG. 68. MAP STUDIES. — (1) How many railroads are shown on this map? (2) Which of these are east of the Mississippi river? (3) Which are in the Atlantic or Gulf coast plains? (4) Name those that cross the great plains. (5) What railroads lead to the Pacific coast? (6) Name the cities east of the Mississippi, and name a railroad leading to each; five west of the Mississippi. (7) What railroads enter Boston? New York? Chicago? Cincinnati? St. Paul? St. Louis? Denver? Kansas City? Seattle? San Francisco? (8) By what railroads could you travel from New York to San Francisco? From New York to New Orleans? Chicago to Seattle? New Orleans to Salt Lake City? (9) Name the railroads crossing each of the following states: Maine; New York; Penn-



sylvania; Ohio; Illinois; Indiana; Maryland; Missouri; Texas; Nebraska; Utah; Iowa; Louisiana; Wyoming; Nevada. (10) Make a list of states crossed by the following railroads: New York Central railroad; Delaware and Hudson railroad; Pennsylvania railroad; New York, New Haven and Hartford railroad; Southern railroad; Southern Pacific railroad; Union Pacific railroad. (11) What products can you name that might be shipped from each of these states? (12) Name some of the leading seaports of the United States; and one or more lines of steamships entering each. What can you tell about the products carried by each of these lines?

of commerce. The grain, domestic animals, wool, and metals of the West are sent eastward, and manufactured goods of every description westward. The cotton and lumber of the South also are sent north in exchange for manufactured goods. Coal is brought by rail or canal to the seaboard, and thence to the cities along the coast. Much of it is distributed by way of the Ohio and Mississippi rivers and by way of the Great Lakes. Iron ore also is carried mainly by lake steamers.

FIG. 69. A great freight shed at New York where, night and day, cargoes are transferred from the steamer to the freight car for shipment west.

Lumber is brought from the southern states by water to all northern ports. A vast amount comes from Canada by way of the canals and the Hudson river to New York. The lumber of the Mississippi valley is distributed mainly by means of that system of rivers. The forests bordering the Great Lakes supply lumber for the markets of Chicago, Detroit, and other cities along the lake shores. The lumber of the Pacific coast is shipped eastward by rail, or in steamships to Pacific ports and around Cape Horn.

Transportation. — The United States contained in 1914 about 2,500,000 miles of public highways, 370,000 miles of railways, besides

canals and rivers which afford over 25,000 miles of navigable waterways. Many of the public highways are hard macadam roads, built by the state and municipal governments. The greater number, however, are ordinary dirt roads which are of little use in bad weather. Good highways are of vast importance, because they must be used for transporting nearly all the country's products for a longer or shorter distance. The farmer especially is dependent on good roads. Most large manufacturing establishments are connected directly with the railroads or with navigable waters, and hence make little use of the public highways.

Railroad Traffic. — The railroad is now the most important carrier in the domestic trade of the United States. Freight rates have tended to decline as the volume of traffic has increased. The consolidation of various railroad lines into single systems is a marked tendency in this country. A few systems hold a controlling interest in all the 250,000 miles of railroad. The largest of these is the Pennsylvania, which includes about 30,000 miles of track. The combined roads have over 65,000 locomotives, 50,000 passenger cars, and about 2,500,000 freight cars of about 40 tons capacity.

The railroads are generally grouped as follows:

The Southern Railroads. — Among the roads composing this group are (1) the Chesapeake & Ohio, (2) the Atlantic Coast System, (3) the Louisville & Southern, (4) the Illinois Central, and (5) the Georgia Central. The great railroad centers are New Orleans, Jacksonville, Atlanta, Nashville, and Louisville.

The Western Railroads. — The great transcontinental lines are included in this group, such as (1) the Northern Pacific, (2) the Chicago, St. Paul & Puget Sound, (3) the Southern Pacific, (4) the Atchison, Topeka & Santa Fé, and (5) the Chicago, Rock Island & Pacific. The great railroad centers connected with this group of roads are Seattle, Portland, San Francisco, Denver, Kansas City, Omaha, Minneapolis, St. Paul, St. Louis, and Chicago.

The Central Railroads. — The lines of this group have Chicago as their dividing point. Some run from the seaboard to Chicago, some from Chicago to the west. Those running to Chicago are (1) the New York Central & Hudson River Railroad, running from New York to Buffalo, and the Michigan Central & Lake Shore, extending from

Buffalo to Chicago, (2) the Pennsylvania Railroad, (3) the Baltimore & Ohio, and (4) the Big Four, consisting of the Wabash & Pacific, the Lake Erie & Western, the Chicago, Cleveland, Cincinnati & St. Louis.

Those lines running from Chicago westward consist of (1) the Chicago, Milwaukee & St. Paul, (2) the Burlington System, with lines extending as far as Denver, and (3) the Chicago & Northwestern.

The chief centers of the central railroads are New York, Albany, Buffalo, Pittsburg, Fort Wayne, South Bend, Chicago, St. Louis, Philadelphia, and Baltimore.

The Eastern Railroads. — The lines of this group are (1) the New York, New Haven & Hartford, (2) the Boston & Maine, (3) the Maine Central, and (4) the Grand Trunk Systems. The principal railway centers in this group are New York, Albany, Montreal, Boston, Portland, and Hartford.

The great bulk of our freight, especially the crops, is carried by railroads from the centers of production to the manufacturing cities and seaports. If each of the freight cars in operation in the United States should deliver one load of freight per month, the total amount carried would be approximately one billion tons. Heavy commodities, especially coal, iron ore, lumber, grain, and cotton, are transported by water whenever practicable. It is estimated that 230 million tons of freight are carried annually on our navigable rivers, lakes, and canals.

Standard Time. — We saw that a difference of 15° in longitude between two places corresponds to a difference of one hour in time. If you traveled from New York to St. Louis, you would find that your watch was one hour fast in that city. If you went on to Denver, you would find that your watch was two hours too fast, while at San Francisco your time would be three hours ahead of the time of the clocks there. Each place between these cities could also have its own local time, or sun time. When the sun is in the meridian of any town, it is 12 o'clock, noon, and at all places east of that line it will be later, and at all places west of it, earlier. The time of cities a few hundred miles apart, east and west, used to differ in this way by 20 minutes, thus causing great confusion in time tables and train management. Starting westward with Boston time, trainmen found a time different from their own at Albany, at Buffalo, at Detroit, and at Chicago. Travelers' watches were always wrong. To avoid this

difficulty our continent has been divided into belts, and hour meridians were selected, 15° apart, as shown in *Figure 70;* within each hour belt the time of the central meridian was adopted by all the towns and the railroads. These divisions are called **Standard Time Belts;** the Atlantic, central meridian 60°; the Eastern, 75°; the Central, 90°; the Mountain, 105°; and the Pacific, 120°. Atlantic time is four hours earlier than London time, and Pacific time is eight hours earlier. On

FIG. 70.

arriving in Chicago from New York, the traveler sets back his watch one hour, from eastern to central time. If he starts from New York at 12 o'clock, in 24 hours he reaches Chicago at 11 o'clock, when the sun has just reached the meridian of New York and one hour before it will reach the meridian of Chicago. On his return, if he reaches Pittsburg at 12 o'clock, central time, he immediately starts for New York at 1 o'clock, eastern time; for every 15° difference the watch is set one hour ahead.

The boundaries of the time belts are irregular, because time is not changed on crossing the margin of a belt, but at the nearest important railway center. In passing from eastern to central time, the change

is made at Buffalo, Pittsburg, or Atlanta, as these are the principal cities that lie on the boundary between the eastern and central time belts. Railway time tables show a change of one hour at these points.

Coastwise Commerce. — Only vessels flying the American flag can engage in the coastwise trade. This has been a very important factor, not only in the development of the trade itself, but also in fostering the shipbuilding industry on both the Atlantic and Pacific coasts. The coast trade of the United States is larger than that of any other country. The trade between the North and South is largely carried on by sea. Both steam and sailing vessels are employed. Cotton, lumber, and naval stores, as well as fruits and vegetables which are not quickly perishable, are brought from southern to northern ports. Manufactured iron and steel, dry goods, groceries, machinery, and various food products move in the opposite direction. There is also a large coast trade between the ports of New England and those of the states farther south. Much of this passes through New York bay and Long Island sound. It consists largely, in the eastward movement, of cotton, wool, leather, flour, meat, and other raw materials and foods; and, in the return movement, of the products of New England factories.

The principal lines engaged in the United States coast-line trade running from New York are (1) the Southern Pacific Company to New Orleans; (2) the Savannah Line to Savannah; (3) the Clyde Line to Philadelphia, Jacksonville, and Charleston; (4) the Baltimore Transportation Company to Baltimore; (5) the Mallory Line to Galveston and Key West; (6) the Old Dominion Line to Norfolk; (7) the Metropolitan Line to Boston and Providence; and (8) the Eastern Steamship Line to Portland.

River Traffic. — The United States Congress annually appropriates millions of dollars for the dredging and deepening of the natural channels of rivers. The large rivers of the country form extensive lines of waterway for the movement of domestic trade, and were very early utilized. River traffic is practically continuous by way of the Ohio and the Missouri, from Pittsburg to the mouth of the Yellowstone on the border of Montana.

The most important navigable rivers belong to the Mississippi system and are the Mississippi, the Missouri, the Ohio, the Arkansas,

and the Red, with a few tributaries. The Mississippi affords a waterway from St. Paul, Minn., and from Pittsburg by way of the Ohio to the gulf of Mexico, but there are no passenger lines now running south of St. Louis and the freight traffic is light. The Ohio is navigable as far as Pittsburg, furnishing a very important outlet for the coal, iron, and other heavy products of that part of the country.

FIG. 71. A type of freight steamer formerly in wide use on the Mississippi.

The Missouri is navigable as far as Fort Benton during the spring, but the competition of the western trunk lines has made this stream of less importance than formerly. Many of the Atlantic rivers are navigable for some distance inland, and tributaries of the Ohio afford traffic facilities with the western slopes of the southern Appalachians.

The great trouble with the inland river systems of our country is that they, with the canals, have been allowed to stand in point of equipment very much where they were 50 years ago, while railroads

have shown a wonderful development. The great exception has been the Ohio river and its tributaries, where navigation has been greatly promoted by the construction of a series of dams, giving the city of Pittsburg a deep-water harbor throughout the entire year. The outlay for doing this amounted to $1,000,000. Many millions have not only been saved each year in freights, but markets have been retained for coal and iron from this locality which would otherwise have been lost long since to other coal-producing and iron-making localities.

Lake Commerce. — The chain of Great Lakes forms the most important lake route in the United States. Steamers connect Duluth with points on Lake Huron and Lake Erie. Cleveland, Chicago, Milwaukee, Detroit, and Port Huron are connected by steamers. Like many rivers, the Great Lakes are closed to traffic for several months during the winter season on account of the ice.

The freight carried consists almost wholly of raw materials carried through from an upper lake port to a lower one, or *vice versa*. Coal is shipped from the various ports on the south shore of Lake Erie to ports on lakes Superior and Michigan; while flour, grain, iron ore, and lumber make up the cargo on the trip from Lake Superior and Lake Michigan ports to unloading docks on Lake Erie.

Certain lake ports are closely related to areas of production and are consequently the points at which staple products are concentrated. Duluth, Superior, Milwaukee, and Chicago are points for a large wheat and other grain shipment. Some half a dozen lake points are the chief centers for the shipment of iron ore.

Much of the freight on the Great Lakes is carried in steel freighters, built for speed, capacity, and strength. (See *Figure 27*.) Many are 500 to 600 feet long and have a capacity of 10,000 to 12,000 tons. One of the largest carried 13,000 tons of soft coal in a single cargo, and on another trip 422,000 bushels of wheat.

Canals. — The Erie canal, completed in 1825, connects the Hudson, by way of the Mohawk valley and other streams and lakes, with the Great Lakes at Buffalo. Before this canal was in operation, it cost ten dollars and took three weeks to send a barrel of flour from Buffalo to Albany. By the canal it can be sent through in a week at a cost of 25 cents. The " Soo " canals, one built by the United States and the other by Canada, at Sault Ste. Marie (St. Mary's Falls),

between Lake Superior and Lake Huron, pass through over 26,000 vessels a season. The Welland canal between Lake Erie and Lake Ontario, in Canadian territory, passing around the falls in the Niagara river, affords a continuous passage from the Lakes to the ocean. The Champlain canal connects Lake Champlain with the Hudson river. The Chicago ship canal, running from Lake Michigan to the Illinois river, is deep enough to carry vessels needing 15 feet of water. This

FIG. 72. The locks on the Sault Ste. Marie ("Soo") canal between Lake Superior and Lake Huron.

may in time serve as a canal leading from the Great Lakes to the Mississippi and thence to the gulf of Mexico. It is very likely that this work will be undertaken shortly by the government, as the opening of the Panama canal is a powerful incentive to the improvement of the Mississippi.

The Transportation of Grain. — Grain in the United States moves generally to the east. Of all the millions of bushels of corn received in St. Louis, about one half reaches the Atlantic coast by rail, one tenth reaches New Orleans, the remainder moving southeast. Wheat moves to the great centers on the Lakes and thence by canal

and railway to the eastern and seaboard centers of consumption. In the West it moves toward the Columbia river and Puget sound, toward Asiatic markets.

The Movement of Cattle. — Live stock comes from the southern states, the western ranches, and the corn belt. It moves to Chicago, Kansas City, St. Louis, Omaha, and St. Joseph, the packing centers. In the West it moves from the Rocky mountain states to the Pacific coast.

The Transportation of Cotton. — Cotton moves from the cotton belt to the Altantic Gulf seaboard. The Mississippi and its tributaries centralize the product of the middle states at New Orleans. The South Atlantic cotton states ship by rail to the coastal cities.

Coal and Iron. — Coal moves by rail to the Atlantic coast cities and the lake ports. The southern coal trade is supplied by Alabama, Kentucky, and Tennessee. The movement west of the Mississippi is in all directions. Iron ore comes mainly from the Lake Superior region by a long water and rail trip.

Lumber Transportation. — Lumber moves from the south, from Maine and eastern points, from the interior by rail, and along the canals and the Hudson river. St. Louis is a great market for the central states, and Chicago for the lake region. On the Pacific coast there are two movements, one by rail and the other by water. A great amount of lumber is shipped east around Cape Horn; while the movement from Washington eastward is chiefly by rail.

QUESTIONS AND EXERCISES. — (1) Explain how domestic trade grows up in a country. (2) Take any section of the United States, as shown in *Figure 58*, and show how it is dependent upon the other sections. (3) Explain how transportation is limited by natural conditions. (4) What modes of transportation are employed in the United States? (5) On an outline map trace the great transcontinental railways. (6) What is the advantage of a system of standard time? (7) Explain why our railroads are better developed than our inland waterways. (8) On an outline map trace the great United States river systems. (9) Would the Great Lakes be as important commercially if transferred to the southwestern border of the United States? Why? (10) Why should our coastwise trade be restricted to American vessels? (11) What will a coastwise vessel carry as cargo in steaming from New Orleans to New York? From Boston to New York? From Savannah to Boston? From Charleston to Philadelphia? What will these vessels carry on the return trips? (12) What will a Pacific coastwise steamer carry between New Orleans and San Francisco? San Francisco and New York? Seattle and San Francisco? Tacoma and Galveston? Seattle and New York? (13) Describe the movement of grain in the United States. (14) On an outline map show the movement of coal and iron. Of cotton and lumber.

CHAPTER XI

CENTERS OF PRODUCTION, INDUSTRY, AND TRADE

Why Cities Become Great Centers. — Civilized men generally have gathered in groups, villages, and towns, the better to receive and enjoy the fruits of civilization, or for purposes of self-defense. The tendency in the civilized world to-day is to draw people still more from the open places of the earth into the cities. This concentration in cities to-day is generally to help in the receiving and transportation of the earth's products, to assist in manufacturing these, to take advantage of the facilities afforded by a good harbor, or to take advantage of the presence of minerals needed in the industries. The region in the United States where the cities are building up most rapidly at the present time is that east of the Missouri river and north of the Ohio and Potomac rivers. Here are 35 of the 50 cities which have a population greater than 100,000 people.

Again, the location of our great cities has been largely determined by climatic and physical conditions. The character of the harbor of a city is a very important factor. A good harbor is large enough to afford anchorage for many boats and deep enough to admit the largest ships. It is protected from storms, free from ice, connected with the open sea by a deep channel, and has shores of such a character as to make easy the building of docks and the handling of freight. A city with a good harbor possesses great advantage in trade and the population increases. New York, Boston, and San Francisco are examples of cities whose growth was facilitated by good harbors.

A site favorable to the manufacture of iron and steel has determined the location of many cities. Since it is cheaper to ship iron ore to a place supplied with coal than to ship the coal to the iron-mining district, a site near a coal region will probably build up into a great city. Pittsburg is one example of a city which developed largely through this factor; Birmingham, Ala., is another.

Many inland cities owe their development to their proximity to a convenient point for numerous railroad lines to connect. Denver and Indianapolis are examples in the United States.

The presence of water power used to be important in bringing about the establishment of many centers that have grown into prosperous cities. Since the use of coal and the advent of cheap railway transportation, steam and electricity have largely supplanted water power;

FIG. 73. A coffee shed at New Orleans, which ranks next to New York as a coffee port.

and this factor is no longer considered so important a cause for the development of a great center. Of recent years, however, the building of huge dams to utilize the water power of rivers has become increasingly frequent.

In many instances one man may be a great factor in the establishment of a city. Climate and physical causes require a very long period to make themselves felt; a wealthy commercial company can put a city in the middle of a prairie in a few months. Gary, Ind., is an example of this factor in city growth. Then again, the building of

a bridge at a certain point, the construction of a railroad line or a canal will be the secret of the rapid growth of a city. The growth of Kansas City, Mo., and Winnipeg, Canada, may be explained in this way.

Types of Large Cities. — The principal types of cities in the United States are (1) commercial cities, such as Boston, (2) manufacturing cities, such as New York, (3) mining cities, such as Scranton and Cripple Creek, Col., (4) political cities, such as Washington, Albany, Harrisburg, and Topeka, and (5) health or pleasure resorts, such as Newport, Atlantic City, N. J., Asheville, and Colorado Springs. Most large cities are both commercial and industrial centers, while some belong also to one or more of the other classes.

Great Commercial Cities. — All great commercial centers grow up in locations first, where the conditions favor the collection and shipment of food products or raw materials on a large scale, or secondly, on important lines of communication at points where the mode of transportation is changed. These places are seaports, river ports, lake ports, and railway centers.

Seaports; Boston. — At the head of Massachusetts bay, on a harbor made by the drowning of several small valleys, Boston presents all the conditions required for a great port. Its harbor is one of the best in the country, though not so large as that of New York. It ranks first as the distributing city of leather goods, especially shoes; manufactured woolens are also sent in large quantities from this city. A number of important railroad lines run into Boston and connect it with the great western lines. It ranks as the eighth of the great manufacturing centers of the United States. It controls nearly all the export and import trade of New England, besides receiving a large amount of raw products from the Middle West for export. Its steamship lines connect it with Liverpool, Cuba, Glasgow, and Hamburg. It ranks sixth in the value of its exports and second in the value of its imports, taking in raw sugar, chemicals, drugs, cotton goods, linen, flax, and raw rubber. Its industries consist of the manufacture of shoes, iron and steel goods, and wool, sugar refining, and printing.

Philadelphia. — In contrast with Boston and New York, Philadelphia is a river port 100 miles from the sea, built upon a level tract between the Delaware and the Schuylkill rivers. Including Camden on the Jersey side of the Delaware, it has a dock line about ten miles

long. It is accessible to the largest vessels, but its greater distance from Europe as compared with New York is a disadvantage. The Pennsylvania Railroad, which crosses the Appalachian ridges through a series of water gaps, has done much to develop the city and connect it with the West. Philadelphia is closely connected with the Pennsylvania coal fields and the Pittsburg iron district. It ranks third in the value of its imports, buying raw sugar, chemicals, drugs, hides, and silk. It ranks fifth in the value of its exports, sending out iron and steel, coal,

FIG. 74. The gateway to Tacoma, Washington.

petroleum, leather goods, cotton, and woolens. Its foreign trade is about one eighth that of New York. Carpet making, iron and steel casting, printing, and clothing manufacture are among its industries.

Baltimore. — This city, 160 miles from the sea, near the head of Chesapeake bay, has a good harbor. It is supported by the fruit belt of the coastal plain and the oyster fisheries of Chesapeake bay. The Baltimore and Ohio Railroad runs into it from the west. The Pennsylvania connects it with the north. It ranks fifth in the value of imports and fourth in the value of exports. The city ships large quantities of canned oysters, manufactured clothing and tobacco, coal, and foodstuffs.

New Orleans. — The general level of this city, about 80 miles above the mouth of the Mississippi, is now considerably above the top of the levee. The largest seagoing vessels reach it without difficulty, owing to the excavation of a 30-foot river channel. The city ranks sixth in the amount of its imports, buying raw sugar, coffee, linens, hemp, and flax. It ranks third in the amount of its exports, sending out cotton, rice, and sugar. Just now the city is developing an important trade with Mexico and the Central American states, while the Panama canal is greatly increasing its importance. Galveston is a city which is rivaling New Orleans in the amount of its foreign trade. In fact Galveston is now second only to New York in its foreign commercial relations.

San Francisco. — The conditions for a great seaport at San Francisco are almost perfect. The lower Sacramento river has been drowned and the sea let into a valley. The result is San Francisco bay, 50 miles long and 10 miles wide, open to the sea through the Golden Gate, one mile wide. It is reached by four transcontinental railway lines, three from the south and one across the Sierra from the east. Its foreign trade with China, Australia, Japan, Liverpool, Hawaii, Mexico, and the Philippines amounts to $100,000,000 annually. Its exports consist of fruits, wheat, cotton, leather, wines, and cattle products. It ranks fourth in the value of its imports, which consist of tea, silks, and Asiatic products.

Galveston has already gained second place in the export trade. Seattle and Portland are growing in trade and population.

River Ports; St. Louis. — Owing to its position on the Mississippi and close to the mouth of the Missouri, St. Louis has excellent facilities for water trade. It has fine railway facilities; the famous Eads Bridge across the Mississippi is 2,500 feet long, connecting the city with East St. Louis, where many railroad lines center. St. Louis is noted as a great flour and grain market, and is important also for its production of iron and steel, finished tobacco, malt liquors, and meat products.

Cincinnati, with its pork-packing establishments and soap factories, grew up at the large bend in the Ohio where river freight (not destined for the southern course which the river takes here) was put on shore. The great stock and grain raising region around Kansas

City made it second only to Chicago as a meat-packing center. It is important to remember, however, that both Cincinnati and Kansas City rely to-day more upon railroads than upon river connections.

A large town is always certain to rise at the head of navigation on great rivers. This fact explains the growth of St. Paul as a railroad center and distributing point for the great states lying to the west. Pittsburg grew up from the readiness with which coal was brought to

FIG. 75. The commercial section of Seattle, Washington.

it by river transportation, and iron ore by the short rail route from Lake Erie. It is one of the largest shipping points for coal, iron, and steel.

Lake Ports; Chicago. — This city, at the head of Lake Michigan, has a position of great commercial importance. It has developed into the second city of America and the fourth in the world. Its progress is due to conditions inherent in its position: it is at the head of the lake route in the North Central states. You will note that all the east-west land traffic must pass around the head of Lake Michigan, so that it produces a very great concentration of railways at this point, making Chicago the largest center in the world. It is the trade center of the eastern section of the central plain, including the corn, wheat, cattle, and

swine belts. The regions that feed it extend to the Rockies. It is nearer than the Lake Erie ports to the Superior iron and copper mines, and it has the eastern coal field at its doors. It is above all a market for grain and wheat, shipping more of these products than any other city in the world. The manufacture of clothing is an important industry, the value of the output amounting to over $75,000,000 a year. In addition to exporting great quantities of flour, grain, and dressed meat, it sends out large quantities of its manufactures, including ready-made clothing, musical instruments, and agricultural machinery.

Buffalo. — No interior city except Chicago has a more favorable position than Buffalo. At the east end of the lake route in the United States and at the west end of the Mohawk-Hudson highway and the terminus of several railroads from the Pennsylvania coal fields, it commands all the great resources of the northern states. The water power of Niagara, which is transformed into electrie light, heat, and power, is at its command. Its importance grows from the fact that it is the most convenient port for the transshipment of products from lake steamers to the railroads and the Erie canal.

Duluth. — This city furnishes a great outlet for the wheat of northern Minnesota and the Dakotas. It is situated at the western end of the Great Lakes, as is Buffalo at the eastern. Great quantities of ore are sent to the city for transfer to lake steamers bound for ports on the lower lakes.

Detroit. — This is an inland strait city before which all the traffic of the upper lakes, 25,000 vessels a year, must pass. It is a convenient stopping place for all boats passing between lakes Huron and Erie. Detroit is a growing railroad center since it is the point of crossing for east-west trunk lines. It is noted for its manufacture of automobiles and for its shipments of grain, pork, and ores.

Cleveland. — This city, on a good harbor at the mouth of the Cuyahoga river, shares with Pittsburgh the advantages of the leading coal and iron districts of America. It is busily engaged in iron and steel manufacturing, oil refining, and ship building, manufacturing nearly all the steel vessels used in the lake trade. Cleveland is also a center for the grain trade and for coal and ore shipping, great quantities of the Wisconsin and Minnesota ore being transferred here to the railroads.

Railway Centers. — All the important seaports, river ports, and lake ports of the United States are also more or less important as railroad centers. There are also a number of large cities without water transportation which owe their commercial importance entirely to the fact that they are at the junction of several railroad lines. This makes them collecting and distributing points for a large district

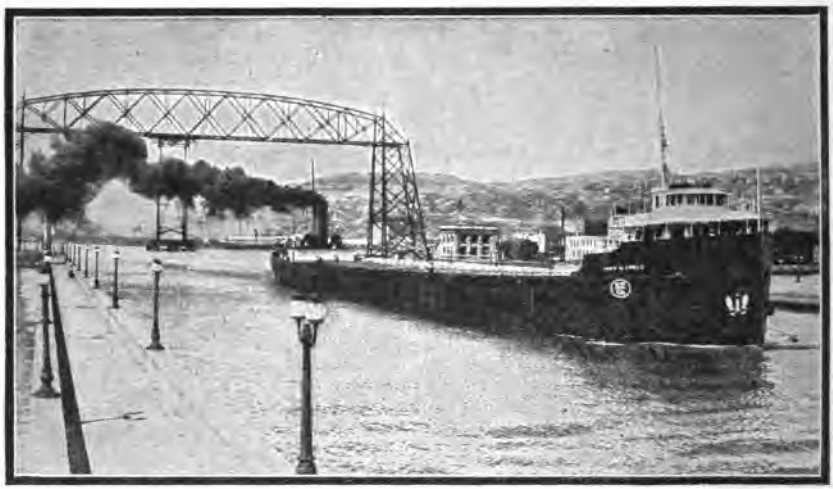


FIG. 76. The entrance to the harbor at Duluth, Minnesota, showing the aërial bridge and a 10,000-ton freighter.

around them. Indianapolis, Denver, Fort Worth, Tex., and Columbus, O., are types of these.

Ten Great Manufacturing Cities. — Most large cities which are great commercial centers are important also as manufacturing centers. Their transportation facilities help them to gather in raw materials and to ship their manufactured products easily. Again, abundant labor is always close at hand. Besides these reasons, the presence of a great number of inhabitants in a large city itself creates a constant demand for manufactured articles of all kinds. These must either be produced in the center itself or brought from other cities. You will note, therefore, in the list following that the great commercial cities lead also in manufacturing.

LEADING PRODUCTS AND VALUES IN MILLION DOLLARS	VALUE OF ALL INDUSTRIES
New York. Clothing (494), Printing and Publishing (194), Meat Packing (131), Castings and Machinery (107), Tobacco (78), Bakery (77), Silk Goods (74), Liquors (72)	$2,970,000,000
Chicago. Slaughtering and Meats (325), Clothing (105), Castings and Machinery (104), Printing and Publishing (76), Iron and Steel Products (71), Lumber (33)	1,408,000,000
Philadelphia. Clothing (60), Castings and Machinery (60), Cotton Goods (30), Carpets (23), Bakery (21), Gas (12)	911,000,000
Pittsburgh. Iron and Steel (323), Castings and Machinery (52), Electrical Machinery (20), Cars (16)	578,000,000
Boston. Boots and Shoes (103), Slaughtering and Meats (36), Printing and Publishing (36), Leather (34), Castings and Machines (29), Electrical Machinery (20)	564,000,000
St. Louis. Slaughtering and Meats (82), Boots and Shoes (34), Tobacco (30), Liquors (24), Books and Printing (18), Mill Products (17), Cars (16), Castings and Machines (15)	430,000,000
Cleveland. Iron and Steel (38), Castings and Machines (37), Automobiles (21), Slaughtering and Meats (17), Clothing (17), Printing and Publishing (10)	282,000,000
Buffalo. Slaughtering (25), Iron and Steel (23), Mill Products (20), Cars (9), Soap and Candles (8), Lumber (8)	279,000,000
Detroit. Automobiles (59), Castings and Machines (18), Slaughtering (13), Brass and Bronze (12), Patent Medicines and Drugs, (11)	269,000,000
Baltimore. Slaughtering and Meats (14), Copper and Tin Products (14), Castings and Machinery (11), Tobacco (10), Canning and Preserving (7), Cars (7)	260,000,000

QUESTIONS AND EXERCISES. — (1) Why do most of the immigrants arriving at our ports generally settle in the large cities? (2) Where were the first large cities located in this country? Why? (3) What manufactures are peculiar to large cities? (4) What fixes the location of cities to-day? (5) Name some American cities that have grown rapidly and describe the causes of growth. (6) How do railroads affect the location and growth of cities? (7) Name and account for the importance of seven seaports in the United States. (8) Name and explain the importance of two gulf ports and four river ports. (9) Select any ten cities in the United States and give one reason for the location of each. (10) Draw a map of the Great Lakes, locate a city on each, and account for its commercial importance. (11) After the great San Francisco fire, why was there no question as to the rebuilding of the city? (12) Mention some types of large cities and give examples of each.

CHAPTER XII

NEW YORK CITY AS A COMMERCIAL CENTER

In population and importance New York is the first city in America and the second in the world. It is the financial and commercial center of the western hemisphere and the continent's greatest manufacturing center and seaport. A study of *Figure 78* shows you that it is rectangular in broad outline, about 35 miles long, 15 miles in width, and some 330 square miles in area. Of its five political boroughs — Manhattan, Bronx, Brooklyn, Queens, and Richmond — the first is the most densely peopled and the most important in finance and commerce.

Manhattan island, the site upon which the city began to grow, is a strip of land 13½ miles long, with an average width of but two miles. In 1614, when first the Dutch settled on the island, the land was generally rough and rocky, covered here and there with ponds, marshes, and swamps. To-day it is a human beehive. People in New York have gone deeper into the ground and have built to greater heights than in any other city in the world. The reasons for these unusual and congested conditions are many, but most prominent among them is the fact of the city's location on this narrow strip of land bounded on each side by a river. For many years the center of trade remained at the lower end of the island. As business has grown it has pushed up town, constantly forcing the residential districts farther northward — the direction of easiest expansion.

As population increased and business grew, tall buildings became a necessity, because the water on either side prevented surface expansion. As business encroached on the northern section the skyscrapers were welcomed as a means of providing opportunity for growth. At first these buildings came singly, then in groups, and as they have increased in number they have grown in height, until the latest giant, the Woolworth Building, stands preëminent among the

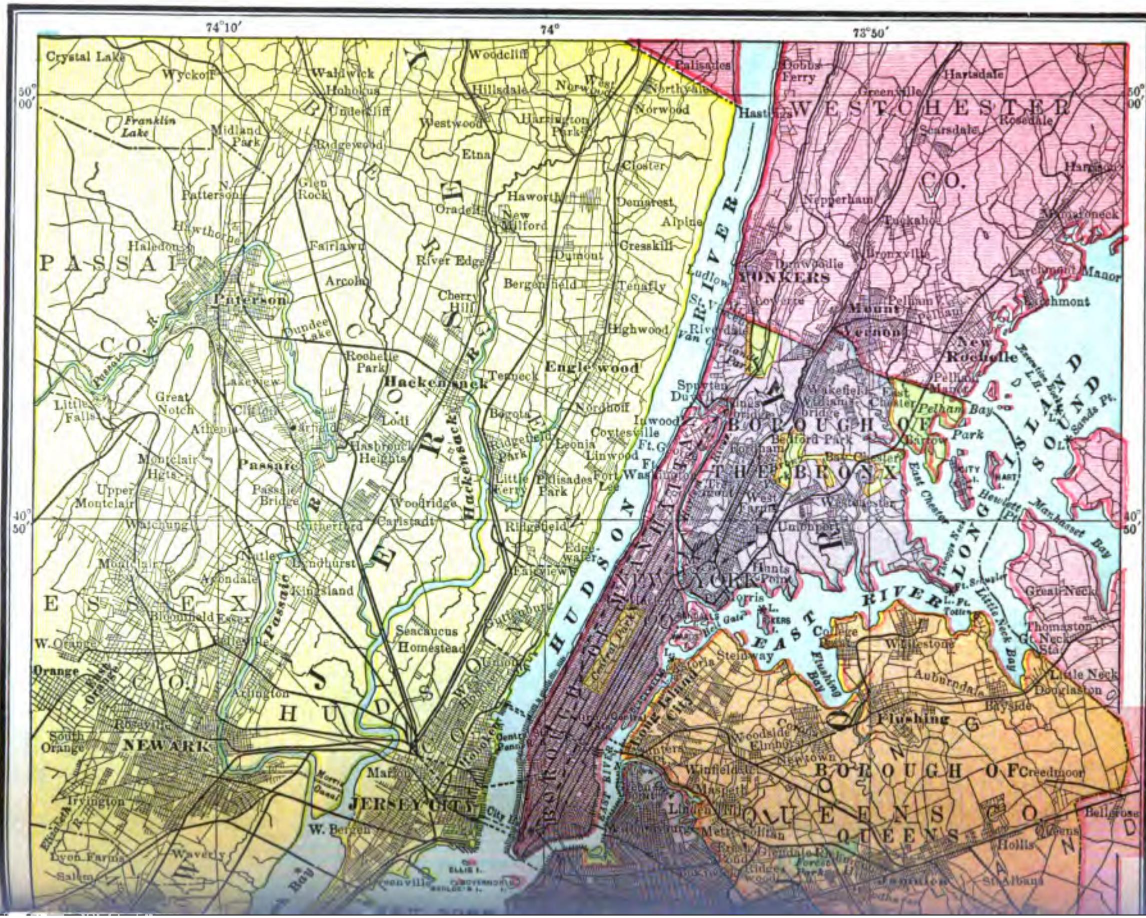
world's office structures, rising to an elevation of 750 feet, or 51 stories. Other buildings of unusual height are the Metropolitan Life, reaching an altitude of 693 feet; the Singer Building, 612 feet; the City Investment Building, 486 feet, and the Bankers Trust, 539 feet.

Notwithstanding the enormous areas provided by hundreds of these mammoth buildings, the city has expanded far beyond the rivers,

FIG. 77. Great freighters being loaded at New York with the aid of lighters.

by going both over and under them. Naturally the first and easiest method of crossing the water was by means of boats and bridges, and as the first marvel in the latter method the Brooklyn Bridge stood for years unrivaled. This structure, 13 years in building, was opened in 1883 and cost over $22,000,000. By 1910 there were four of these bridges connecting Manhattan with Long Island, costing from $17,000,000 to $26,000,000 each.

Why New York is a Great City. 1. **The Harbor.** — New York is situated upon a harbor on the type of a Norwegian fiord with a large lagoon at its mouth. The lower Hudson, which makes this



74°10′
74°
73°50′
40° 50′
40° 00′
WESTCHESTER CO.
PASSAIC CO.
BERGEN CO.
ESSEX CO.
HUDSON CO.
BOROUGH OF QUEENS
QUEENS CO.
BOROUGH OF THE BRONX
BOROUGH OF MANHATTAN
NEW YORK
HUDSON RIVER
EAST RIVER
LONG ISLAND SOUND
Crystal Lake
Wyckoff
Franklin Lake
Midland Park
Paterson
Haledon
Hawthorne
Little Falls
Great Notch
Upper Montclair
Montclair
Passaic
Hackensack
Englewood
Teaneck
Tenafly
Closter
Norwood
Palisades
Dobbs Ferry
Hastings
Yonkers
Hartsdale
Scarsdale
Rosedale
Harrison
Mamaroneck
Tuckahoe
Bronxville
Mount Vernon
New Rochelle
Larchmont Manor
Pelham Bay
Flushing
Flushing Bay
Whitestone
Bayside
Little Neck Bay
Little Neck
Great Neck
Manhasset Bay
Creedmoor
Hollis
St. Albans
Jamaica
Newark
Orange
South Orange
Irvington
Jersey City
Hoboken
Union
Secaucus
Homestead
Arlington
W. Bergen
Central Park
Long Island City
Steinway
Woodside
Elmhurst
Newtown
Winfield
Maspeth
Metropolitan
Ellis I.

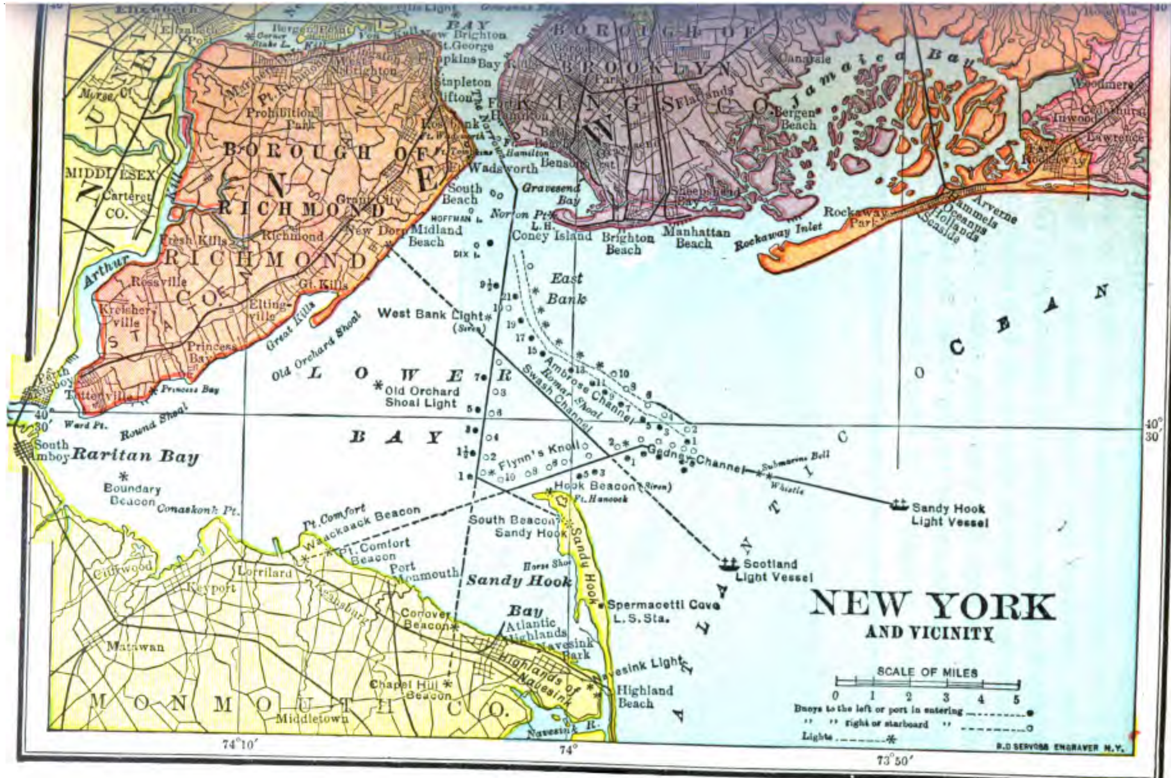

NEW YORK
AND VICINITY
SCALE OF MILES
0 1 2 3 4 5
Buoys to the left or port in entering
" " right or starboard "
Lights
R.D SERVOSS ENGRAVER N.Y.
74°10′
74°
73°50′
40° 30′
BOROUGH OF BROOKLYN
KINGS CO.
BOROUGH OF RICHMOND
RICHMOND CO.
Jamaica Bay
LOWER BAY
Raritan Bay
Sandy Hook Bay
MONMOUTH CO.
MIDDLESEX CO.
ATLANTIC
OCEAN
West Bank Light
Old Orchard Shoal Light
Sandy Hook Light Vessel
Scotland Light Vessel
Ambrose Channel
Swash Channel
Gedney Channel
Coney Island
Brighton Beach
Manhattan Beach
Rockaway Inlet
Rockaway Park
Arverne
Hammels
Oceanus
Hollands
Seaside
Bergen Beach
Canarsie
Flatlands
Gravesend Bay
East Bank
Flynn's Knoll
Hook Beacon
Sandy Hook
Spermacetti Cove L.S. Sta.
Highland Beach
Highlands of Navesink
Atlantic Highlands
Chapel Hill Beacon
Conover Beacon
Port Monmouth
Keyport
Matawan
Middletown
Cliffwood
Lorrilard
Boundary Beacon
Conaskonk Pt.
South Amboy
Perth Amboy
Tottenville
Kreisherville
Rossville
Princess Bay
Great Kills
Eltingville
Fresh Kills
Richmond
New Dorp
Midland Beach
South Beach
Grant City
Wadsworth
Stapleton
Clifton
New Brighton
St. George
Prohibition Park
Carteret
Elizabeth
Ward Pt.
Round Shoal
Old Orchard Shoal
Romer Shoal
Woodmere
Inwood
Lawrence
Far Rockaway

FIG. 78.

fiord formation, has been partly filled with sediment. Note in *Figure 78* how the East river and Long Island sound constitute an inside passage between the mainland and Long Island. The fiord and passage expand where they join to form the upper bay. This irregular formation affords the fortunate city about 350 miles of water front, with over 90 miles of dock line with deep water. There is room enough to build piers at right angles to the shore, so as to accommodate a large number of vessels. The lower bay is of an entirely

FIG. 79. A general view of the great Bush Terminal at New York. Here ships from every port in the world discharge their cargoes.

different character. It is a shallow indentation partly fenced in from the sea by the Coney Island beach and Sandy Hook, both of which are growing farther into the bay and threatening to close it altogether. The Ambrose channel in the harbor was deepened and widened recently at a cost of $6,000,000. A plan is now being considered to make a new port at the eastern end of Long Island, to accommodate steamers having such a length that docking facilities are no longer convenient in the limited space along the New York water front.

2. A second reason for its development lies in the fact that the most valuable part of its surrounding area is the anthracite coal fields about 100 miles to the west. These easily feed the great metropolis its fuel.

3. The fact that the Mohawk-Hudson gap (leading to the Great Lakes) cuts through the Appalachians opens up to New York all the resources of the great region extending to and beyond the Mississippi. The facilities of this route from the interior to the coast are so superior to all others that the opening of the Erie canal in 1825 soon gave New York a lead with which no other city has ever caught up. The Mohawk-Hudson valley is now traversed by the Erie canal and by the New York Central Railroad with six or more lines of track. The canal has been deepened to 12 feet so that it may carry 1000-ton barges. In the future we shall probably have a ship canal 24 feet deep, which will enable large vessels to pass from Duluth and Chicago to New York.

4. It has the wonderful advantage of a large and continuous supply of cheap labor, since it is the landing place of most of the foreign immigrants. This is one reason for its great development as a clothing center. Ninety per cent of its inhabitants are foreign born or of foreign parentage.

Transportation Facilities. — As business and population continued to increase in New York the traffic problem grew more difficult. Bridge capacity was taxed and ferryboats could not handle the throngs of people, while underground railways became more and more important features. Some idea of the human traffic may be had from the statement that in 1911 passengers to the number of 345,903,962 were carried by bridges and river ferries, while the longitudinal subways, surface and elevated roads carried a combined total of 578,-154,088 persons. The growth has been so marvelous that the 300 miles of street railways are to be immediately increased to more than double their present mileage. When fully completed the cost of New York's subways will be not less than $300,000,000, or within $75,-000,000 of the cost of the Panama canal.

Natural barriers render Manhattan island almost inaccessible by railroads, and until recently only two lines reached it. The New York Central and the New York, New Haven & Hartford lines enter it from the north. The Long Island system enters from the east. So that its trains could enter the city, the Pennsylvania Railroad has spent $50,000,000 in constructing a double tunnel from the Jersey shore, under Manhattan and both rivers, to Long Island, with an

immense station in the heart of the city. The Erie Railroad, the Baltimore & Ohio, the New Jersey Central, and the West Shore lines connect with the metropolis on the Jersey side of the Hudson.

The narrowness and extreme length of Manhattan make the problems of housing and transit very difficult. Railroads, surface lines, elevated lines, subways, tunnels, ferryboats, and bridges struggle

FIG. 80. A great freight yard at the Bush Terminal, New York. Here merchandise is unloaded from steamers to the freight cars direct.

twice every day to get more than two million people to their business places and to get them home again.

Industries and Manufactures. — New York exceeds all other cities in the clothing, printing, and publishing industries, in sugar, copper, and petroleum refining, in tobacco manufacture, and the production of malt liquors. The manufacture of iron and steel goods, the making of millinery and laces, of men's and women's furnishings, of bread and other bakery products, of shoes and confectionery, occupies the lives of many thousands of its people. Its manufactures constitute one tenth of those of the whole United States.

The business part of the city is divided into various trade and industrial districts. There is a financial, a newspaper, a printing, a book and magazine publishing, a jewelry, and a meat-packing dis-

trict. There is a section devoted to the wholesale leather trade, to the hardware line, to the retail and the wholesale clothing industries. Since it is the financial center of the United States, it has countless business offices, banks, and large exporting houses, concentrated for the most part in the southern portion of Manhattan. Some idea of New York's relative position as a great money center is gained by a comparison with London. New York's bank clearings in 1912 were $96,670,000,000, while London's were only $74,770,000,000. The clearings for the same period for the whole United States were $168,-

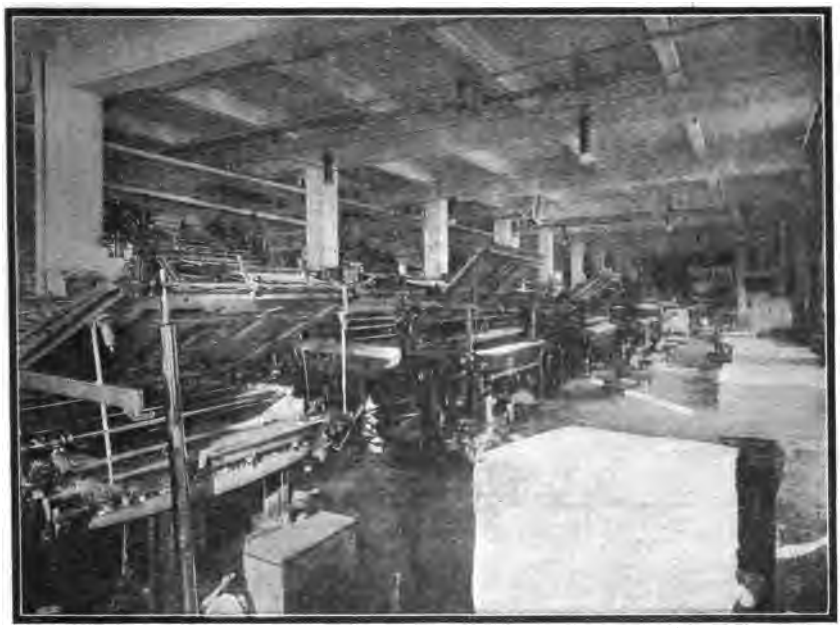


FIG. 81. A view in a great printing-press room in New York.

500,000,000. The total bank resources were: for New York, $4,728,-500,000, with 168 banks, and for the whole United States, with 25,190 banking institutions, $28,146,000,000. The banking power of this country has more than doubled itself since 1900. The astounding thing is that about ten per cent of the banking power of the world is centered in New York. It would be beyond belief, were it not for the fact that

the United States has become the richest country on the globe, and that New York is the most important banking center of this rich country.

We have noted the abundance of cheap labor as one of the reasons for the city's development. A great many of the immigrants landing from the passenger steamers stay in the city. These foreigners generally take up the manufacture of clothing or women's furnishings, such as artificial flowers and laces, which they manufacture by hand in their own homes.

FIG. 82. Herald Square, New York.

Over 250 or more kinds of goods are manufactured in New York into articles which include everything that could possibly be used in a civilized country. Clothing manufacture is the most important of these products, since the value of the output has reached $485,000,000 a year.

Trade. — About 17,000 seagoing vessels enter and leave the port every year. About 5,000 are engaged in foreign trade, and an average of nearly 25 large passenger and freight steamers arrive and leave every day. Over one half of these sail under foreign flags. Over 4,000 freight cars arrive daily at the freight yards, most of them bearing the cargoes that are transferred to the steamers.

The tonnage of the port — that is, the capacity in tons of the vessels entering and leaving — is over 8,000,000 tons. This exceeds that of any other port in the world and includes about three eighths of all the foreign commerce of the United States.

At its docks rest steamers from the farthest ports in the world. In Erie basin, on the Brooklyn side, great freighters come in loaded to full capacity with bales of old rubber boots, tires, hose, coats, and all imaginable articles made of rubber, which have been gathered in the streets of such far-off places as Petrograd and Glasgow. These bales are transferred to freight cars and shipped out to Indiana and Ohio to be converted into new automobile tires. They are then placed on motor cars, many of which are shipped over to Europe.

Great steamship lines with vessels departing at regular intervals connect New York with all the countries of Europe, Africa, South America, Asia, and Australia.

The city buys huge quantities of raw sugar, fruits, coffee, chemicals and drugs, hides, rubber, and manufactured cotton. It ships a great amount of refined petroleum and sugar, clothing, hosiery and knit goods, cigars, coffee, and confectionery.

QUESTIONS AND EXERCISES. — (1) State the chief factors which explain the growth of New York City. (2) Give the chief reasons why it has outgrown Philadelphia in importance. (3) What advantage in receiving western trade has New York over Baltimore? (4) What is the place of New York among the great world cities? (5) What nationalities are represented in its population? (6) Name some of the causes for its great growth in population. (7) How has the situation of New York City helped its growth? (8) Describe its coast line. (9) On an outline map show the great railroads entering New York City. (10) In what ways is transportation provided in New York? Explain the need for this on Manhattan island. (11) Give reasons for the increase in the manufactures of this city. (12) Name the city's chief imports; its chief exports. (13) How does the national government aid New York in the navigation of the harbor? (14) What other coast cities are connected with New York by regular steamship lines? (15) In what four respects does New York City excel all other cities of the United States? (16) Mention a railway on which one might travel from New York to Buffalo; to Chicago.

CHAPTER XIII

THE IMPORTANCE OF ALASKA AND OUR ISLAND POSSESSIONS

Alaska; Surface and Climate. — Although originally purchased only with the idea of gaining more power over the Pacific coast, and with little idea of its commercial value, Alaska has been a very profitable investment for the United States.

The territory is a vast peninsula, in area over 600,000 square miles, bounded by the Arctic and Pacific oceans and the Bering sea. This sea is nearly enclosed by the Alaskan peninsula, an arm of land projecting from the southern coast and extending under the sea, forming the Aleutian chain of islands. Alaska is about twice the size of Texas and nearly one sixth as large as the United States. The surface is mountainous, with the exception of the Yukon basin and the northern Arctic slope. The Alaskan mountains in the southern part, an extension of the Rocky mountain system, are the highest on the continent.

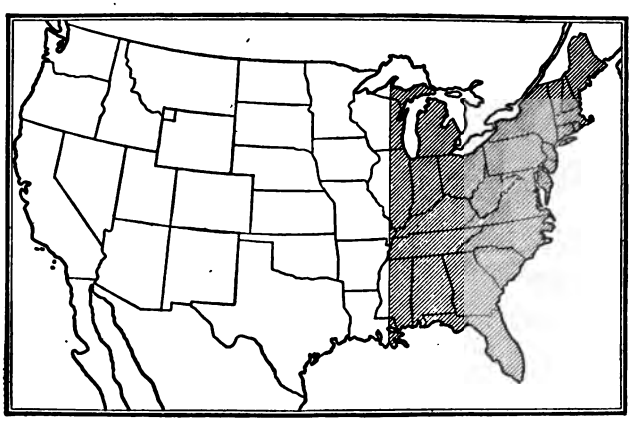


FIG. 83. How we have grown. The shaded portion shows the area of our possessions outside the United States.

On account of Alaska's high latitude the climate is very cold and the summers short. It is, however, much milder than on the eastern

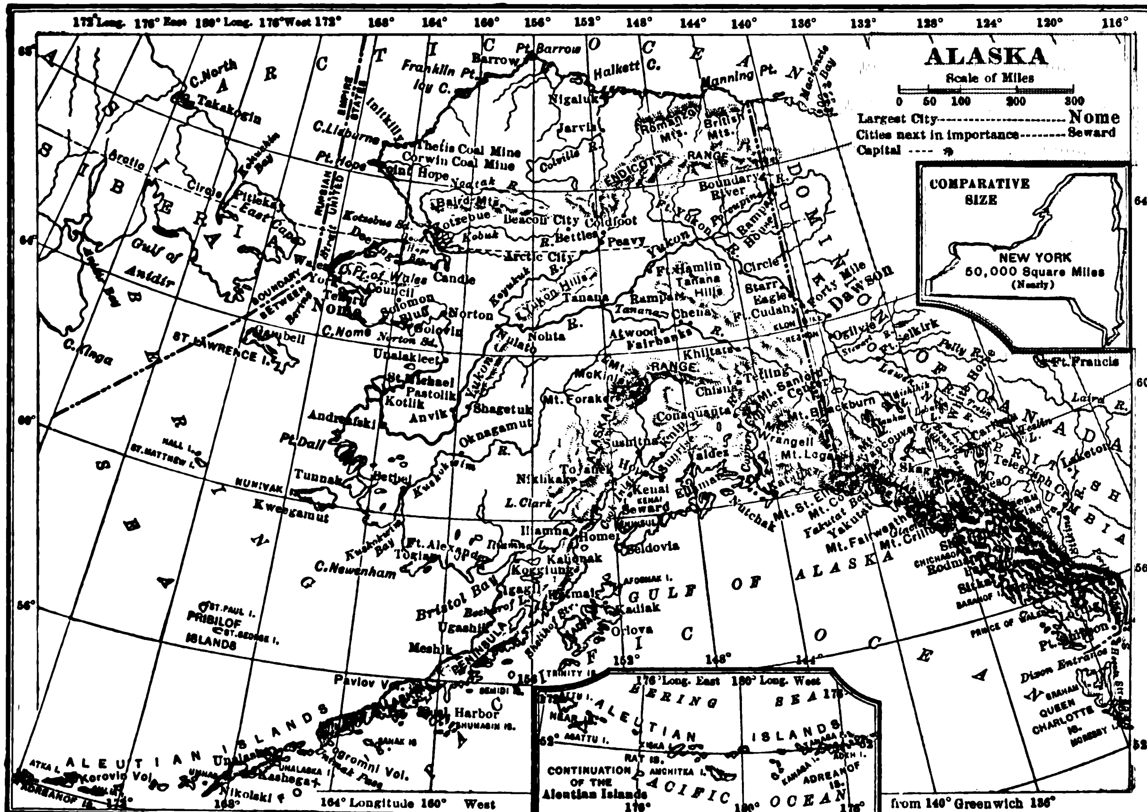

ALASKA
Scale of Miles
0 50 100 200 300
Largest City Nome
Cities next in importance Seward
Capital
COMPARATIVE SIZE
NEW YORK
50,000 Square Miles
(Nearly)
CONTINUATION OF THE Aleutian Islands
GULF OF ALASKA
from 140° Greenwich 136°
Williams Engraving Co., N.Y.

FIG. 84.

side of the continent, on account of the warm western winds that blow over the Japan current. These winds bring a heavy rainfall on the coast and cover the mountains with a great depth of snow. The rainfall at Sitka averages from 60 to 90 inches a year.

Only the southern part of the country is habitable for civilized men, and the inhabitants are chiefly Indians and Eskimos, with a few thousand white miners, traders, and government officials, the total amounting to 65,000 persons.

Products and Industries. — Rich forests, soil suitable for the hardier grains and vegetables, salmon-stocked rivers, and untold mineral wealth in the form of gold, iron, coal, copper, and marble are among the resources of this region. The fisheries are the most profitable industry. Cod, herring, and halibut are abundant near the coast, and the rivers fairly swarm with salmon. The export of canned salmon is valued at over $10,000,000 a year. Kadiak island is the center of the canning industry. The salmon are sea fish which enter every river mouth in the spring and ascend to the headwaters to spawn. During this journey of hundreds or even thousands of miles they eat nothing, and all die after spawning. The young fry float down stream tail first and go out to sea. The adult fish, weighing from 10 to 100 pounds, are caught in the rivers with nets and taken to canneries near the coast. More than 13,000 people are employed in the business. The United States government has established hatcheries and enacted rules regulating the salmon industry, to prevent waste and to conserve the supply.

So far only the gold mines of Alaska have been worked. Juneau, the capital of the territory, owes its existence to veins of gold-bearing quartz in the neighboring islands, which have been worked since 1880. The whole province now yields about $12,500,000 a year. Copper mines do exist, but are only beginning to be developed. Extensive deposits of high-grade coal occur near the coast in the extreme northern part, but are as yet little used. The resources, which include marble and sulphur, are also waiting now for cheap transportation facilities and men to work the mines.

The Pacific slope of Alaska has forests of considerable value, most of them wisely under the control of the government. Below the snow line, hemlock, spruce, and cedar are found, but the timber, of course,

is inferior in size and quality to that farther south. Very little farming is done in Alaska, but the government experiment stations have successfully raised hardy grains, vegetables, grasses, and small fruits.

Transportation and Trade. — Several lines of ocean steamships and river boats furnish regular transportation in summer from Seattle and Vancouver. Ten local railways, varying in length from 7 to 100 miles, connect important points with one another and with the coast. The United States government has built hundreds of miles of stage roads and established cable and telegraph lines to all the principal centers. Mail service is maintained throughout the year. In this way the chief cities — Sitka, Juneau, Skagway, and Nome — are being developed rapidly.

Nearly all the trade of the territory is with the United States. The exports of canned salmon, gold, and silver amount to $72,000,000 a year, and the imports, chiefly supplies, food, clothing, and mining and railroad machinery, to $44,000,000.

Government. — The legislative power and authority of the territory are vested in a legislature consisting of a senate of 8 members and a house of representatives of 16 members. The governor, appointed by the President, holds the veto power, but all laws passed by the territorial legislature are transmitted to the President and submitted to Congress.

Porto Rico; Surface and Climate. — This island is the most healthful and thickly settled of the West Indies. It lies within the tropics, just south of the twentieth parallel; it is rectangular in shape and about 100 miles long and 30 miles broad. A low range of forest-covered mountains crosses it from east to west and contains the sources of many streams that drain the island in every direction. A broad and nearly level coastal plain almost surrounds the island. The climate of these low regions is hot or warm throughout the year. On the uplands, however, the weather is moderate and uniformly delightful. Rains are brought by the northeast trades. The northern and central parts of the island receive an abundance of moisture; on the southern coast irrigation is necessary in places, to secure successful crops.

Industries and Products. — The people of Porto Rico are of Spanish descent and number slightly over a million. About two thirds of them are white, the rest being of the usual West Indian mixed race.

They are now making rapid progress in education and industries. There are many small farmers engaged in raising coffee, sugar, tobacco, and oranges, which are the leading products and exports of the island. There are cotton and sugar plantations on the northern coast; coffee, tobacco, and fruits of many kinds flourish on the sloping hillsides of the interior.

Transportation and Trade. — The roads on the island are poor and the railroads few and small. The United States government has built many fine military roads and a railroad entirely around the island,

FIG. 85. Mayaguez, on the western coast of Porto Rico.

connecting all the seaport towns, like San Juan, Mayaguez, and Ponce. The natives employ the rivers in transporting products to the coast. Freight and passenger lines run between San Juan and New York and New Orleans.

The island cannot support its people with the products raised, necessitating the bringing in of salt fish from Canada, rice from neighboring islands, and meats, flour, vegetables, and canned goods from the United States. Cotton cloth, shoes, lumber, oil, and iron and steel goods are also among the imports, as there is little manufacturing done on the island. The export of the staple products has increased more than threefold since 1901 and considerably exceeds the imports in value. The annual trade with the United States amounts to $125,000,000. The exports are sugar, tobacco, coffee, fruits, and molasses.

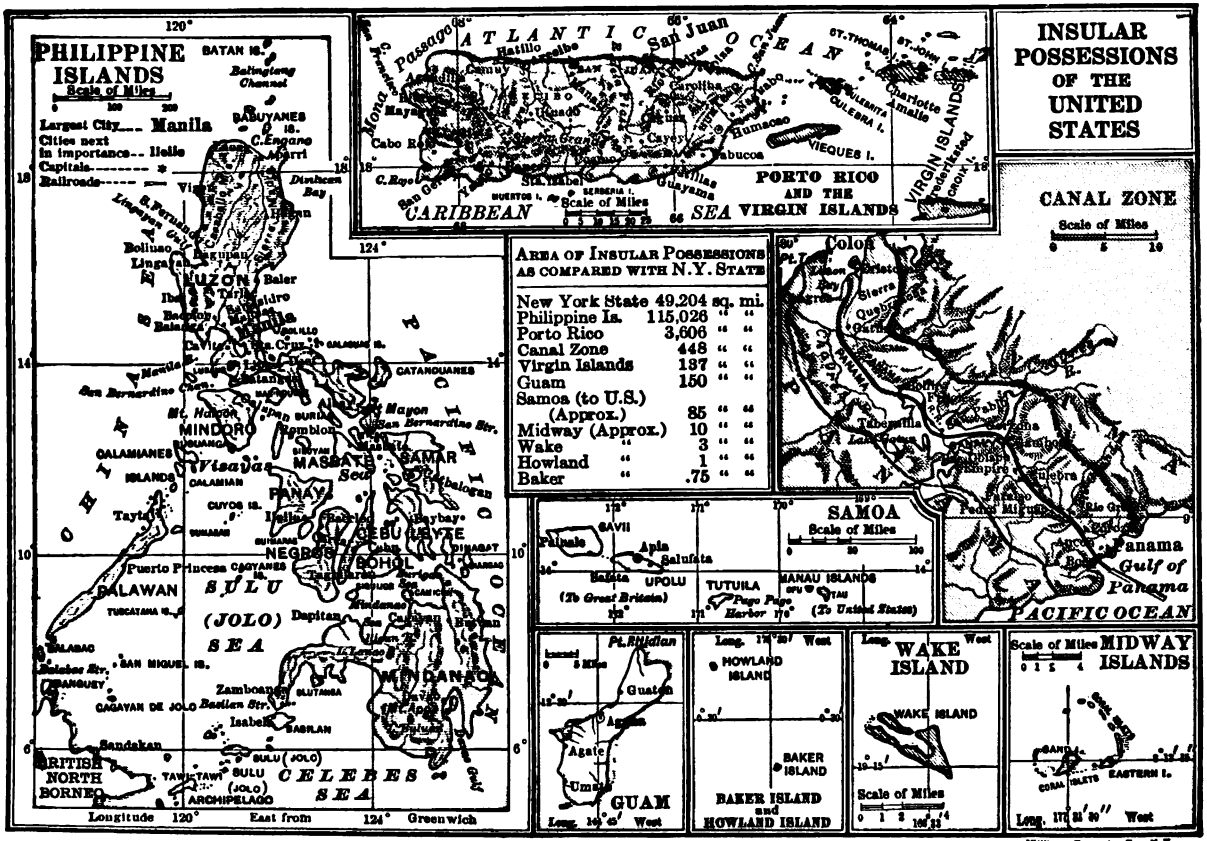


FIG. 86.

Williams Engraving Co., N.Y.

Government. — A civil government was established in 1900, consisting of two legislative houses. One is an executive council or upper house made up mainly of Americans appointed by the president, but including five Porto Ricans. The house of delegates, or lower house, consists of 35 members elected by the people. The governor, an American citizen, is appointed by the president. The island is represented in Congress by a resident commissioner.

Hawaii. — The Hawaiian islands, on the tropic of Cancer, 2,500 miles southwest of San Francisco, consist of eight large volcanic masses rising from the ocean bottom and having an area about the size of Connecticut and Rhode Island. Their position at the crossroads of the Pacific makes their possession of prime importance in the politics and commerce of that ocean. They are of great value as a naval station and depot of supplies for ocean steamers. Most steamers crossing the Pacific find it convenient to take on additional supplies of coal at some intermediate point, and Hawaii is the only convenient coaling station in the middle Pacific. The United States government has improved Pearl harbor on the island of Oahu and fitted it up as a station for our navy. It has a dry dock, in which the largest vessels can be repaired, and storehouses for supplies of every sort.

The native Hawaiians are now outnumbered four to one by Chinese and Japanese.

Climate and Soil. — As these islands lie in the path of the trade winds in about the same latitude as Cuba and Porto Rico, they have a mild and equable climate throughout the year, with plentiful rain, especially on the windward side of the islands. The leeward shores are often arid, as the mountain ranges cut off the moisture. In some elevated sections the rainfall reaches 300 inches a year, while in others it falls below 20 inches. The soil is usually of great fertility and well adapted to sugar, coffee, and tropical fruits.

Industries and Trade. — The industries of these islands are almost entirely agricultural. The principal cultivated plants are sugar and coffee. These are the chief exports. In sugar the islands rank next to Cuba and Java, sending 500,000 tons annually, chiefly to San Francisco, where it is refined. Fruits, rice, and hides are also among the exports. Our exports to Hawaii comprise a long list of manufactured goods, of which flour, meats, cloth, and machinery are

the most valuable. They amount in value to about $80,000,000 a year, while our imports from the islands are about $45,000,000.

The capital and chief city of Hawaii is Honolulu, on the island of Oahu. It is a modern city and an important calling port for ships of all nations. The mails are exchanged here, and the telegraphic cable recently laid between San Francisco and Manila has a landing here. The harbor is the only good one on the islands. The city and port of Hilo, on the island of Hawaii, is second in importance.

Government. — The executive power is lodged in a governor, appointed by the President, and a cabinet. The legislature is composed of two houses, the senate of 15 members, and the house of representatives of 30 members.

The Philippine Islands; Location and Climate. — The Philippine group, lying off the southern coast of Asia, includes about 3,000 islands. The actual land area, about 115,000 square miles, is equal to the area of the six New England states with the addition of that of New York. Mindanao and Luzon, the two largest, are each about the size of New York state. The next in order of size are Samar, Negros, Panay, Palaywan, Mindoro, Leyte, and Cebu.

The valleys are covered with a deep soil, made rich by the decayed lava which has been washed down from the hills. The mountainous parts of the islands are heavily forested and there is everywhere a rich tropical vegetation. Palms of many kinds, the bamboo, and the mangrove tree are common. There are valuable cabinet woods, including ebony; other trees supply dyes, gums, and drugs. Cinnamon, cloves, and pepper also grow.

The position and direction of the mountain ranges have an important effect on the rainfall. They not only break the violence of the storms or ward them off altogether, but the leeward sides of the mountains uniformly receive less rain than the windward sides. The dry season comes with the northeast monsoons during the winter. At this season the islands receive only local showers and frequently suffer from droughts.

The climate is tropical, with an abundance of rainfall. The thermometer during July and August rarely goes below 79° or above 85°. Heavy rains come with the southwest monsoons, which prevail from June to October.

Products, Industries, and Trade. — Although agriculture is the chief occupation of the Filipinos, yet only one ninth of the surface is under cultivation. The soil is very fertile, and even after deducting the mountainous areas it is probable that the area of cultivation can be very largely extended and that the islands can support a population equal to that of Japan (42,000,000). The population is now about 7,600,000. The best known product is Manila hemp, which forms 43 per cent of the exports. This fiber is obtained from the leafstalk of the wild plantain. The pulp of the leaves is scraped away with a

FIG. 87. New docks in the harbor of Manila, Philippine Islands.

knife and the fibers dried in the sun and packed into bales. The finer fibers are used by the natives in making " abaca " cloth. Other important farm products are sugar, tobacco, corn, rice, cacao, and cocoanuts. The tobacco is made into cigars, the chief manufacture of the islands.

Raw sugar is the second largest product and is exported to China, Japan, and the United States. Immense quantities of cocoanuts are brought down to the seashore on rafts. The meat, when extracted and dried, is called **copra**; it supplies an oil used in soap making and is exported to the countries of Europe. Rice and sweet potatoes are widely grown and form the " staff of life " for the Filipino people. Two of the most useful plants on the islands are the bamboo and the rattan,

both of which are species of reeds which split easily into fibers. The bamboo serves not only for house building and fences, but also for mats, cloth, water pipes, fishing rods, and wickerwork of various kinds. The rattan makes excellent furniture, window screens, and trellis work, as well as baskets, hats, rope, mats, and even small bridges.

The Philippines send the United States about $77,000,000 worth of products and buy $50,000,000 worth of our goods, largely iron and steel, flour, cloth, meat, and manufactured goods. To other countries, chiefly Great Britain, French East Indies, China, and Spain, the islands sell about $33,000,000 worth of products and buy about $31,000,000 worth of manufactures and food products.

Transportation is afforded largely by the rivers. There are about 800 miles of railways, and telegraph lines connect the larger islands, while a Pacific cable connects Manila with the United States. Four wireless stations are operated. Steamship lines connect Manila with Hongkong, Australia, Japan, Singapore, and Liverpool.

Government. — The government is composed of a governor-general and eight commissioners, three of whom are Filipinos. There is also a native legislative assembly with limited powers. Local governments have been established in about 725 towns, and to foster self-government the country is divided into 30 provinces, some of the officers being native and some American. Six hundred American and 7,000 Filipino teachers are employed in the school system organized by the Americans.

Manila, a city of 240,000 population, is the commercial center. Its bay is one of the finest harbors in the Pacific ocean, and the city is certain to be a great center of Oriental trade. Bauan, Lipa, and Cavité are other cities connected with the activities of Manila. Iloilo, the second port of the group, is the center of a brisk export trade in tobacco, hemp, and sugar.

Minor Possessions. — Guam, one of the Marianas, or Robber islands, was secured in 1898. Tutuila and several others of the Lamoon group came into possession of the United States by treaty with Germany. Wake island and a dozen other rocks and reefs in the Pacific also belong to the United States, but none is of any importance to production and commerce.

The Virgin Islands in the West Indies, about fifty miles east of Porto Rico, were purchased from Denmark in 1917. There are three important islands in the group of fifty. The population is only 26,000 and the area of the group about 140 square miles. St. Thomas is of chief importance as a coaling and marine-repair station and for its possibilities as a naval depot and fortress. The chief crop is sugar, but the commercial interests are unimportant.

REVIEW QUESTIONS. — (1) Name the foreign possessions of the United States (2) How was Alaska secured by the United States? (3) Explain how the acquisition of Alaska, so much derided at the time of purchase, has been of advantage to this country. (4) What commercial possibilities are found in Alaska? (5) What is being done to help transportation and communication in the territory? (6) What are the two leading industries? Why? (7) Compare the climate of Alaska with that of Labrador. (8) How is the territory governed? (9) Describe the location, size, and surface of Porto Rico. (10) Describe its trade relations with the United States. (11) How is the island governed? (12) How does the location of the Hawaiian islands lend them importance? (13) Describe the products and trade relations with the United States. (14) Describe the surface and climate of the Philippine islands. (15) Describe the trade relations between the Philippines and the United States; between the islands and Europe. (16) What is hemp and what use is made of it? (17) Describe a route from New York to Manila and state approximately the time required to make the trip. (18) How are the Philippines governed? (19) Why has the navy established coaling stations here?

CHAPTER XIV

THE UNITED STATES IN THE WORLD'S MARKETS

We have seen that few states can supply all the products required by their people. So, too, few countries, if any, can supply even a small part of all the products which their people need and can use. It would be useless to try to raise corn and cotton in England, sugar cane in Canada, or coffee or spices in the United States. Italy has no coal or gold, and Ireland, Switzerland, Denmark, and Holland have no ores of any kind. Every community can furnish, raise, or manufacture some things to better advantage than others can, and the community which undertakes to be independent and supply everything it needs will be forced to limit its wants very much. Out of these conditions, as we have seen, arises commerce or trade or the exchange of products between different individuals, families, communities, and countries. Trade is the most complex and important of all the adaptations to his environment which man has yet accomplished.

Why the United States Exports Goods. — The foreign commerce of the United States is insignificant in comparison with the enormous domestic trade which we have studied in the preceding chapters. This is because our people supply their own wants first, and then send to other countries the products for which they have no home use. From these countries, then, they obtain goods not produced at all in this country or not produced in sufficient quantities to supply their needs.

The United States might get along very well without dependence on other countries; yet we produce so much more than we can consume ourselves that we are very willing to send this surplus production to foreign countries In exchange we import (1) products that are grown more cheaply in foreign lands, such as sugar and hemp; (2) products, like Belgian lace and German scientific apparatus, that are as good or better than American products and yet are manufactured more cheaply, and (3) products that we cannot produce here

at all. Among these latter are imports like bananas, cocoa, tea, coffee, chocolate, rubber, and silk. It pays us best to buy these things and to spend our time in producing the articles which we can make most cheaply and easily.

The Balance of Trade. — However, we supply so many of our own needs in our cities and factories, and have so much surplus product to spare, that we export to foreign countries much more than

FIG. 88. Loading bananas at New Orleans on a fruit steamer bound for London.

we import in exchange. The exports and imports between nations are rarely exactly or nearly equal, and the difference between them is called the **balance of trade.** Generally the nation who sells more than she buys has a balance of trade in her favor, and the nation who has to buy more than she sells has a balance of trade against her. She becomes a debtor or an owing nation. It is true that the years of greatest prosperity in America have been those when the balance of foreign trade was greatly in our favor. On the other hand, in England the most prosperous years have been those in which the balance of trade has been largest against her.

Our exports now range about $5,500,000,000 in value, while our imports are worth about $2,900,000,000. In this way a surplus of about $2,600,000,000 is the balance of trade in our favor. A country is rapidly storing up wealth, it would seem, when the other nations with which it trades are paying it $2,600,000,000 a year in money for its excess of products.

As a matter of fact, we are not able to retain all this wealth. The surplus of exports from the United States goes abroad largely to pay the freight bills of foreign steamships carrying our products, tourist expenses, interest on American securities held in foreign countries, and in the money sent by foreign-born residents to their native lands. The fact that the United States is able to send all this wealth abroad and still be prosperous indicates its wonderful internal activity and consequent wealth. On the other hand, England is a trading nation, and business passes through the hands of her people leaving little more than the percentage of profit for handling it.

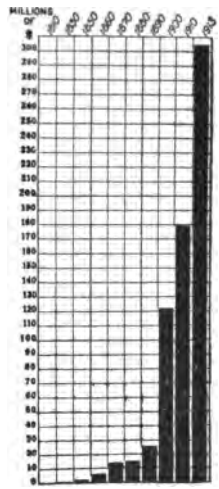


FIG. 89. This shows the value of the United States exports of iron and steel manufactures, 1810–1913. Note the years of greatest increase.

What the United States Exports. — The total value of exports of domestic merchandise from the United States last year was about $5,500,000,000. Cotton stands at the head of the list. The iron and steel industry comes next, and the farmers of the country furnish in agricultural products the third largest amount of merchandise for export. Machinery of all kinds, oils, paper, fruit, and chemicals are also leaders in our exports. Naturally all our exports will come from those products that we make in the largest quantities. This explains why agricultural products stand so high, this item including food products, raw materials, and cattle. The manufactures include cotton goods, lumber products, leather goods, and manufactured tobacco. About 63 per cent of our exports consists of agricultural products, 30 per cent of manufactures, while forest and mining products make up the remainder.

The demand for American goods in foreign markets is due to their

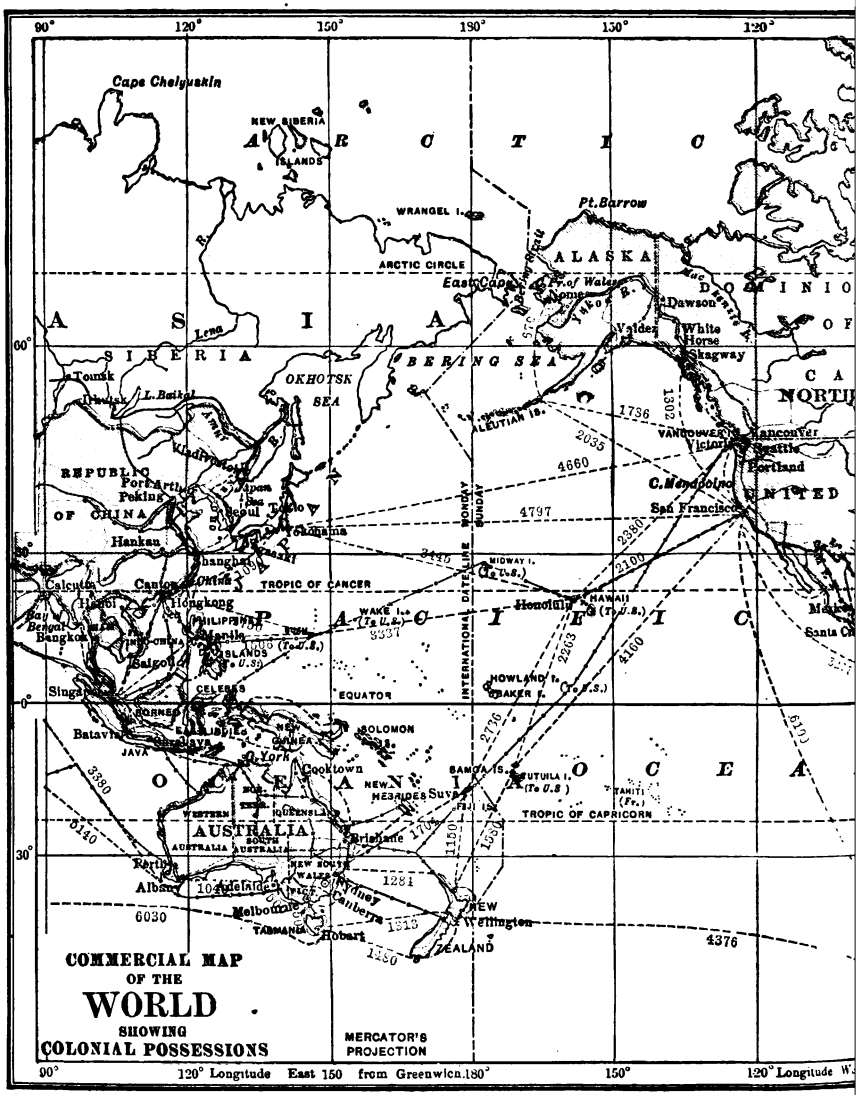
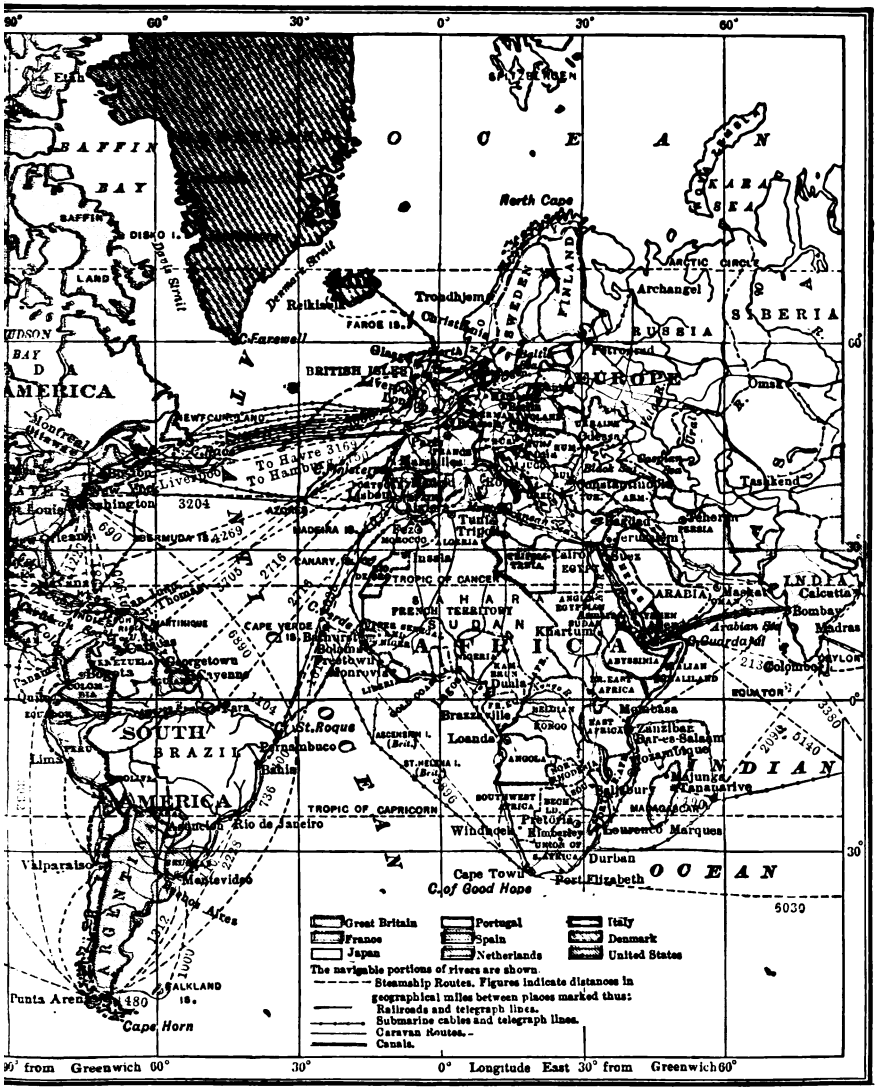


FIG. 90. — TRADE AND TRANSPORTATION. — (1) Trace the ocean routes from New York, Boston, and New Orleans to Liverpool, Havre, and Hamburg. (2) What is the length of each route? (3) What products are carried from the United States to each of these European countries? (4) What products are brought back? (see Appendix) (5) Trace the routes from San Francisco to Nome, Yokohama, Shanghai, Manila, and Sydney. (6) What is the length of each route? (7) Describe the foreign trade of San Francisco. (8) What six routes lead out from Honolulu? (9) What is the length of each? (10) Note the central position of Honolulu. What advantages does this position afford? (11) What is the distance from San Francisco to New York by way of Cape Horn? By way of Panama? (12) Trace the route from Punta Arenas to Wellington; from Wellington to Hobart; from Hobart to Cape Town; from Cape Town to the Cape Verde islands and



London. (13) Trace the shortest route from London to Montreal, Vancouver, and Yokohama. Which part of it is by land? (14) Describe the trade which is carried on by this route. (15) Trace the route from Calcutta to London by way of the Suez Canal. What calling ports along this route? (16) At what ports might a steamer call on a voyage from Bombay to Cape Town? (17) What ports on the western coast of Africa? (18) What ports on the eastern coast of South America? (19) Name some of the products shipped from each of these ports. (20) What important ports on the east coast of Asia? (21) Tell something of the trade of each of these ports. (22) Between what countries and along what coasts do you find submarine cables? (23) Trace the cable between San Francisco and Manila. (24) What continents are crossed by lines of railway? (25) Trace a route by land and water around the earth from London westward.

cheapness and excellence. Increase in our foreign sales is also affected by the great variety of the goods produced. They vary from shaving soaps to electric fans, from blouses to telephones. These are manufactured here better than in foreign countries, and can be sold at a cheaper price. Typewriters, automobiles, and moving-picture apparatus are other examples of the products of American skill in manufacture. The American people are no longer importing automobiles to any extent, but are increasing their sales of this vehicle abroad. In 1913, $26,000,000 worth was sold to foreign buyers. The exports of the iron and steel industry, including the manufacture of these materials as well, now amount to about $1,000,000 per day. Europe takes the higher class of goods, and Canada and South America take the rails, structural iron and steel, heavy castings, and other like products that make up the heavy tonnage of the industry.

In 1902, 93,000 head of cattle were imported; in 1912 the importation numbered 325,000 head. In 1902 about 327,000 head of cattle were exported, and in 1912 only 46,000 head. This means that the American people have almost reached the point where the home market absorbs all the cattle in the country, and that in future other peoples, who have in the past been dependent upon the United States for beef supply, must look elsewhere. In American exports we must note that the shipments of foodstuffs are decreasing; that the export of crude manufactured material is decreasing, and in fact, with the exception of cotton, has become very unimportant; and that the export of manufactured foods has increased enormously.

Every day about $7,000,000 worth of goods leaves the United States for foreign countries. Of this export trade about 60 per cent goes to Europe, 21 per cent to North America, 8 per cent to South America, 5 per cent to Asia, 4 per cent to Oceania, and 2 per cent to Africa. American producers send more than 90 per cent of their entire foreign shipments, or more than $2,000,000,000 worth of goods, to 19 countries, and the remaining 10 per cent covers the trade with all the rest of the world. England buys about 25 per cent of the total American export; Canada 15 per cent; Germany 13 per cent; France 6 per cent; the Netherlands 5 per cent; Italy, Cuba, and Belgium each 3 per cent; Mexico, Japan, Argentina, Australia, Russia, and Brazil each 2 per cent. This means that Europe buys about three fourths of all

we have to sell, and that of the total sales to Europe, one third goes to Great Britain.

The United States as a Customer. — Every day in the year the United States buys over $6,000,000 worth of the world's goods. About 40 per cent of our imports consists of raw materials to be manufactured in our mills and factories. These consist of silk, rubber, drugs and chemicals, hides, and wool. Twenty-five per cent of our

FIG. 91. Brazilian coffee being unloaded at New York for shipment to Virginia. The bags contain 131 pounds, and 125,000 bags are often unloaded from one freighter.

imports consists of foodstuffs, such as coffee, tea, sugar, cocoa, and rice. Twenty-one per cent is composed of manufactured articles like jewelry, rugs, cotton, woolen and silk goods, ribbons, millinery, laces, gloves, scientific apparatus, and art work.

We are good customers of Canada, Japan, and Argentina. Cuba and Brazil come next, selling us great quantities of sugar, coffee, tobacco, and rubber. Canada sells us lumber and wood pulp, while Japan sends over silks, teas, and manufactured articles.

Europe sells us more than one half our imports, and these are generally manufactured articles, whereas South American countries

send us raw materials: foodstuffs, hides, cinchona bark, vanilla, dyewoods, and hemp. Wool and hides are obtained from Australia's great herds, and though we are exporting large quantities of machinery to African countries, our imports from this continent are very light.

Since we are constantly increasing our manufactures, the tendency is to buy from other countries more raw materials for our industries and fewer manufactured products.

ONE YEAR'S COMMERCE

Countries	The United States as a Customer	The United States as an Exporter	Total Trade with the United States
United Kingdom	$190,000,000	$1,985,000,000	$2,175,000,000
Canada	435,000,000	778,000,000	1,813,000,000
France	75,000,000	890,000,000	965,000,000
Japan	308,000,000	272,700,000	580,700,000
Italy	30,000,000	477,000,000	507,000,000
Cuba	264,000,000	235,000,000	499,000,000
Argentina	195,000,000	109,000,000	304,000,000
Mexico	140,000,000	107,000,000	247,000,000
Chile	141,000,000	63,000,000	204,000,000
Brazil	113,000,000	66,000,000	179,000,000
Straits Settlements	159,000,000	8,700,000	167,700,000
China	116,000,000	44,000,000	160,000,000
British India	105,000,000	42,000,000	147,000,000
Philippine Islands	78,000,000	48,000,000	126,000,000
Australia	49,000,000	66,000,000	115,000,000
Dutch East Indies	79,000,000	20,000,000	99,000,000
Spain	24,000,000	67,000,000	91,000,000
British South Africa	33,000,000	35,000,000	68,000,000
Peru	41,000,000	22,000,000	63,000,000
Uruguay	23,000,000	18,000,000	41,000,000
Switzerland	18,000,000	21,000,000	39,000,000
Colombia	26,000,000	11,000,000	37,000,000
Totals, including smaller countries not listed	$3,000,000,000	$6,000,000,000	$9,000,000,000

Duties and Tariffs. — It costs a government $60,000 to keep a battleship in commission for one week. We have 39 of them. Our army must be maintained, the post-office and all other governmental

departments run, and to do this requires money. The great sums required to run governments are raised in various ways. Many countries charge an importer a certain sum on the goods which he brings into the country. This sum, called a **customs duty,** is charged (1) to get revenue to help pay the expenses of the government, or (2) in addition to this, to encourage home manufacture.

FIG. 92. A freight steamer from Hawaii unloading hemp after passing through the Panama Canal.

The duty first mentioned — that charged to cover government expenses only — is called a **revenue duty.** This is placed upon articles of luxury, such as wines, jewelry, silks, and the like. No such duty is charged on wheat, beef, or crude rubber, which are articles of food or for manufacturing purposes. When the duty is imposed for the second purpose, it is called a **protective duty,** because the placing of a tax on foreign goods allows our own producers to charge a higher price for the same things, by "protecting" them from foreign competition. German shoes might be sold here more cheaply than the American product, but the duty would make the prices of German shoes greater than those of home make, and therefore keep out the

foreign manufacture. There is no duty on raw rubber, because under no conditions could rubber be produced in this country; but manufactured rubber articles must pay a duty of 35 per cent of their value on entering the country. If a German manufacturer sends here a pair of rubber boots sold in Germany for $3, in this country the price would have to be $4.05 plus the transportation cost, or he would lose money. This means that the American manufacturer may charge $4.05 for his boots without fear that his customers will buy the imported product at a lower price.

Transportation of United States Products. — In trade there are two great movements: one in a north-south direction between the temperate regions and the tropics, and one in an east-west direction between temperate countries in different stages of development. At present, as you know, the east-west movement is greater, but it may not always remain so.

The vast movement of goods across the face of the earth necessitates wonderful activity in the work of transportation as well as constant improvement in the same field. We have already studied the methods of transportation within the United States — by rivers, canals, and railroads. We have now to examine the means by which the foreign trade of the United States and its customers is carried on.

The chief work of a great seaport is to gather the products of the territory feeding it and transfer them on shipboard for conveyance abroad. From incoming ships, however, it has to receive cargoes and transfer them to railroad lines for dispersal throughout the neighboring territory. In all, about 25,000 steam vessels and sailing craft are engaged in our foreign and coastwise trade. The greater part of the foreign trade is carried in vessels built abroad and sailing under foreign flags. Indeed, of our ocean commerce, about one fifth is carried in American vessels and the rest mainly by British, French, German, and Norwegian ships. This is due to the fact that Americans neglected the building of ships for foreign trade until foreign companies secured control of the carrying trade.

During the year 1912 there arrived at Brazilian ports 6,235 foreign vessels. Only nineteen (twelve steamers and seven sailing vessels) were American, and most of these were either yachts or tugs! The remainder was divided as follows: 2,851 British; 1,184 German;

565 Argentine; 379 French; 350 Italian; 195 Austro-Hungarian; 189 Norwegian; 139 Dutch; 81 Uruguayan; 60 Swedish; 49 Danish; 47 Spanish; and 127 ships of other nations.

Figure 90 gives us some idea of the great number of trade routes by which our manufactures seek foreign markets.

Ocean Steamship Lines. — Numerous lines of passenger and freight steamers run between the United States and practically all the continents. Among those running to the British Isles are the

FIG. 93. A South American cargo, consisting of hides, skins, and crude rubber, unloaded from a tramp steamer.

American Line to Southampton; the Anchor Line to Glasgow; the Atlantic Transport Line to London; and the Cunard and White Star Lines from New York, Boston, Philadelphia, and New Orleans to Liverpool.

Many lines run to ports on the continent of Europe: the Atlantic Transport Company to London; the Red Star Line to Antwerp and Dover; the French Line to Havre and Marseilles; the American Line to Plymouth, Cherbourg, and Southampton; the White Star Line to Queenstown, Naples, and Genoa; the Cunard Line to Queenstown, Fishguard, and Liverpool; passenger and cargo lines from New York, Philadelphia, and Boston to Hamburg, Cherbourg, and Naples; the

Holland-American Line to Rotterdam; swift passenger lines from New York, Baltimore, and Philadelphia to Bremen and Naples; the Scandinavian-American Line to Copenhagen; the Russian-American Line to Libau; the Fabre Line to Naples and Marseilles, and the Austro-American Line to Naples, Trieste, and Algiers. The Cunard Line also runs a Mediterranean-Adriatic service.

The growing trade with South America is bringing increasing business to the few steamship lines connecting the continents. Among these lines are the Lamport & Holt Line to Buenos Aires, Para, and Rio de Janeiro; the Lloyds Brazilian Line; the Red "D" Line to Venezuela; the New York & Cuba Mail Line to Havana; the United Fruit Company Lines to Jamaica, Costa Rica, and Colombia; and the Munson Line to Havana.

The Pacific coast ports — San Francisco, Seattle, Portland, and Tacoma — have steamer lines connecting them with the Hawaiian islands, Japan, China, the Philippines, and Australia.

The shifting about over the earth's surface of the great products we studied in this chapter is a process very like this one: the world is a huge checkerboard and these great masses of products are moved back and forth by man's ingenuity. Little is lost or wasted. Everything comes back to old Mother Earth again; iron is mined in the United States, shipped to South Africa, and erected in the form of a huge bridge over the Zambesi Falls. Here it stands and serves until it rots and rusts and every atom of it returns again, sooner or later, to the earth. South American hides are tanned in Massachusetts and returned as bags, belts, and shoes to Argentina. Much of the cotton grown in the United States is shipped to England to be made into cloth to be worn by natives of the Sudan.

Just as we can tell what a certain factory building is manufacturing by watching the raw materials which wagons are delivering at its gates and the products other wagons are carrying off, so, if we know what railroad lines and ocean steamers are bringing to a country and carrying out from it, we understand the commercial relations of that country with others.

REVIEW QUESTIONS. — (1) What is foreign commerce? (2) Under what conditions does a country export goods? (3) Why do countries import the products of other regions? (4) What do you understand by balance of trade? (5) Explain how

England can still be prosperous when the balance of trade is always against her. (6) In what way does the $600,000,000 surplus received by the United States for her products get back to foreign countries? (7) What is the place of the United States in the foreign trade of the world? (8) Name the great United States exports. (9) What is the explanation of the fact that every year the United States exports of raw materials are decreasing? (10) Is this a good or a bad sign regarding our prosperity? (11) Which of our exports take the place of these decreasing raw materials? (12) Why do American manufactures find so ready a sale in foreign markets? (13) What American manufactures would you expect to find in France, the Philippines, Russia, China? (14) What does the United States buy in the world's markets? (15) Can you explain why the United States, which produces one half the world's supply of copper, imports $60,000,000 worth of copper every year? (16) Explain why governments charge import duties. (17) What is the difference between duty for revenue and duty for protection? (18) Why is the great movement of trade now in an east-west direction? (19) Why is it likely at some future period to change to a north-south movement? (20) Explain the twofold work of a seaport town. (21) Why should 80 per cent of our commerce be carried in foreign-built ships? (22) Name five steamship lines running from the United States to ports in the United Kingdom. (23) Name five lines running from the United States to European terminals. (24) Name four lines plying between North and South America.

CHAPTER XV

TRADE RELATIONS OF CANADA, MEXICO, AND CUBA

Canada

Surface and Climate. — Facing the chief countries of Europe and Asia, Canada occupies a position as commercially important as that of the United States. The province is larger than the United States, including Alaska, but its population is less than that of Pennsylvania. The natural divisions are similar to those of the United States, consisting of an eastern and a western highland and a great central region of plains and prairies. The western highlands comprise the northern stretch of the Rocky mountain system.

The land is not nearly so arctic-like as many suppose. Quebec and Ontario have a climate similar to that of our New England states, while the Pacific coast regions enjoy a mild climate with abundant rains, due to the warm Pacific winds. The central region has slight rainfall and a wide range of temperature, while only the extreme northern part is quite barren.

Canadian Resources. — The leading occupation of the Canadians is **agriculture.** The field crops amount to about $435,000,000 in value every year. The eastern provinces — Quebec, Ontario, and New Brunswick — raise potatoes, fruits, Indian corn, and a fair crop of wheat. The great wheat region is now extending from the United States boundary across Manitoba, Saskatchewan, and Alberta, and as far north as the Peace river district. As a spring-wheat section, this region is even more important than that of Minnesota and the Dakotas, and is becoming one of the greatest wheat regions of the world. In British Columbia, a province about 400,000 square miles in area, the coastal parts are so warm and moist that all kinds of temperate-latitude fruits are raised. Wheat, oats, hay, clover, barley, and potatoes are important productions, together with dairy products and cattle.


DOMINION OF CANADA
AND NEWFOUNDLAND
Largest City Montreal
Cities next in Importance Quebec
Capitals
Railroads
COMPARATIVE SIZE
NEW YORK
50,000 Sq. Ms.
(NEARLY)
Scale of Miles
0 100 200 300 400 500
110° Longitude West 100° from Greenwich
PACIFIC OCEAN
ATLANTIC OCEAN
HUDSON BAY
BAFFIN BAY
BEAUFORT SEA
GREENLAND
NORTHWEST TERRITORIES
YUKON
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
LABRADOR
NEWFOUNDLAND
NOVA SCOTIA
UNITED STATES
Davis Strait
Hudson Strait
Melville Sound
Great Bear Lake
Great Slave Lake
Lake Winnipeg
Montreal
Quebec
Ottawa
Toronto
Halifax
New York
Boston
R.O.SERVOSS, N.Y.

Fig. 94.

The **forests** of Canada cover almost 840,000 square miles, about one fourth of the country. This belt extends for several thousand miles, from New Brunswick to Alaska. On the plains this belt is about 200 miles wide, between the prairies on the south and the barren grounds on the north. British Columbia has about one third and Quebec about one fourth of the Canadian forests. Eastern Canada has large supplies of hard woods. Pine is the most valuable soft wood, but the pine-growing areas have been largely denuded. Spruce, much used for pulp and paper, is found in Nova Scotia and Quebec. Fir, hemlock, oak, and hickory are other trees found in the east. Owing to the falling off of our own lumber product, we buy most of the lumber that Canada sells. Wood pulp for the paper mills of New York and New England is supplied mainly from the spruce of eastern Canada. In British Columbia the great Douglas spruce is the chief lumber tree, furnishing tough wood for masts and railroad construction.

The discoveries and first settlements in Canada and the growth of the Hudson Bay Company, founded in 1670, are due almost entirely to its **fur trade.** The silent wildernesses were threaded in the quest of the ermine, sable, mink, and beaver. Edmonton is still the point of supply and departure for hunters, and Winnipeg is a depot for furs.

The **fisheries** of the maritime provinces are extensive and valuable, all waters within the three-mile limit being reserved for Canadian fishermen.

The fish are attracted to these shallow waters as a spawning place, and by the food brought by the Labrador current. Cod, herring, haddock, halibut, mackerel, and lobsters are the leading varieties. The small herring are generally used for bait; but those taken near Eastport, Me., are prepared and sold as sardines. Great quantities of fish are shipped fresh to the United States, but the major part of the catch is pickled, salted, or canned before shipping.

There are valuable salmon fisheries in the Fraser river and its tributaries in British Columbia, and whitefish, sturgeon, bass, and pickerel are abundant in Lake Huron and Georgian bay. The annual value of the Canadian fisheries averages between $30,000,000 and $35,000,000. Great Britain and the United States are the chief consumers of Canadian fish, but large quantities are sent to continental

Europe and to the West Indies. Seal fishing is also an industry of British Columbia which contributes a valuable item to the wealth of the fur trade.

The mineral resources are largely unexplored and the known regions are but partially worked. About $80,000,000 is the value of the mineral products every year, coal leading with a value of $24,000,000. Gold is found throughout the Pacific highlands, and especially along the Yukon river. Coal is most abundant in British Columbia, but valuable deposits are found in Nova Scotia, New Brunswick, and Quebec. It is principally of the soft or bituminous kind.

The coal fields of Alberta are extensive, yielding both soft and hard coal of good quality. Good iron ore also is found, but it is not mined to any extent, owing to lack of transportation facilities to bring in the coal necessary to smelt it. Iron is manufactured in a small way in Nova Scotia, the government encouraging it by paying a bounty on every ton. Nickel and copper are found in Ontario near Lake Superior. The nickel mines at Sudbury are the richest in the world. Silver, lead, petroleum, and asbestos are also found. In the products of her nickel and asbestos mines Canada leads all other countries.

Manufactures. — We have learned that manufacturing industries are successful where there is abundant raw material, available power, good transportation, and profitable home and foreign markets. Canada has all these things, with the exception of a large home market. Much of the manufacturing is simple, such as the making of butter and cheese, the milling of flour, the canning of fish, and the sawing of lumber. The chief center of manufacture is in Montreal, where there are large sugar refineries, iron works, cotton factories, and shoe factories. The manufactures of the young city of Winnipeg now amount to $25,000,000 a year.

Cities, Transportation, and Trade. — The Atlantic cities include Halifax, which is the eastern terminus of the Canadian Pacific, and St. John, the chief shipping point for New Brunswick products. Quebec, on the St. Lawrence, lost much of its sea trade to Montreal when the river was deepened to receive large ships. Montreal, the largest city in Canada, is a terminal of all the transcontinental lines of railway, and has easy communication with New York by way of the Champlain and Hudson valleys. The steamships of the Allan, Domin-

ion, Canadian Pacific, and other lines carry passengers and freight to Liverpool, Havre, and Antwerp.

The chief of the Pacific cities is Vancouver, developed as a terminal of the Canadian Pacific. The western terminus of the Grand Trunk Pacific, Prince Rupert, is also of growing importance. Steamship lines run to Hongkong, Yokohama, Shanghai; Alaska, Honolulu, Australia; San Francisco and Mexico.

FIG. 95. A corner in the financial and commercial district of Vancouver, British Columbia.

The lake cities are Kingston, Toronto, and Hamilton. Toronto, the capital of Ontario, is the second city in population and commerce. It has the advantage of an excellent harbor on the northwestern shore of Lake Ontario. It is near the great farming regions of Ontario, and its superior transportation facilities make it a leading shipping point.

Ottawa, the capital of the Dominion, is joined by the Rideau canal to Kingston and Lake Ontario. Winnipeg, on account of its position, has every transcontinental railway passing through it. It already rivals Minneapolis as a wheat market.

In addition to the Canadian Pacific system, which extends really from China to Antwerp, there is the Grand Trunk Pacific from New

Brunswick to Prince Rupert on the Pacific, and the Canadian Northern from Edmonton to Quebec.

The Great Lakes and the St. Lawrence afford navigation inland for more than 2,400 miles. Protected waters bear vessels 1,000 miles to Montreal. Thence smaller vessels may proceed up the Ottawa to the capital, avoiding rapids by means of canals. Up the St. Lawrence the Soulanges canal is followed to Lake Ontario, and the Welland canal conducts to Lake Erie. The Sault Ste. Marie canal joins Lake Huron to Lake Superior, and the lake terminals for Canada are found at Port Arthur and Fort Williams.

The total foreign trade of Canada now amounts to $1,000,000,000 a year. By far the greater part of this trade is with the United States and Great Britain. Canada sends foodstuffs to Great Britain, and we send general merchandise, machinery, coal, and lumber to Canada. Iron and steel, coal, woolen and cotton goods, sugar, drugs, and chemicals are the largest items in Canada's imports, while her chief exports are cheese, cattle, hides, wheat, lumber, wood pulp, silver, gold, and copper.

Government. — The government of Canada is federal, centered at Ottawa, while the nine provinces have each their own local legislature, elected by the people. The head of the federal government is the governor-general, appointed by the king. The senate is composed of 87 members, appointed for life by the crown, and the house of commons, made up of 221 members, chosen by the provinces according to population.

REVIEW QUESTIONS. — (1) Mention five provinces included in the Dominion of Canada. (2) Mention five important rivers on the boundary between the United States and Canada, and state the direction in which each flows. (3) Mention in order the states bordering on British America. (4) Compare the climate of the east with that of the west coast and explain the difference. (5) Why are the forests of the western highlands heavier than those of the eastern sections? (6) Draw a map of the St. Lawrence system and show the chief canals. (7) Through what seaports does the bulk of the Canadian transatlantic commerce pass (*a*) in winter, (*b*) in summer? Why? (8) Discuss the railroad facilities of Canada. (9) Describe the journey of a cargo of wheat from Port Arthur to Liverpool. (10) Why does Canada have more trade with the United States than with other nations? (11) Where are the chief farming and grazing regions of Canada? Name the leading mineral products and tell where each is found. (12) Make a list of seven leading cities and give the location of each. (13) Why are the Canadian manufactures so few? How could they be increased? (14) What products does Canada exchange with the United States? (15) What does Canada export to the United Kingdom? (16) Compare the Canadian government with that of the United States.

Mexico

Surface and Climate. — Mexico has about one fifth the area and one sixth the population of the United States. It is a long, narrow plateau, 5,000 to 7,000 feet in elevation, rising sharply from each coast. The only considerable lowland is the narrow eastern plain bordering the Gulf. The country lies in the hot belt and is blown over by the trade winds, but the altitude greatly modifies the climate. There are the low hot lands, the higher temperate lands, and the cold lands.

FIG. 96. A corner of the market place in the city of Mexico.

The highlands of Mexico offer conditions for products of the temperate zone, while the lowlands are thoroughly tropical. The chief agricultural exports are, however, of tropical kinds: cocoa, coffee, sugar, vanilla, and rubber. The production of corn, tobacco, and wheat is considerable, Mexico ranking third among the corn-producing countries of the world. The forests are of pine, oak, and dyewoods.

There are three remarkable Mexican products. **Henequen** (sisal hemp) is a fibrous plant, from which are made cordage, coarse cloth, saddle bags, twine, and hammocks. Every year $13,000,000 worth is exported. **Chicle,** the sap of the sapote tree, is the main constituent in our chewing gum. We buy $2,000,000 worth annually, which gives a good idea of the extent of our chewing-gum industry. The

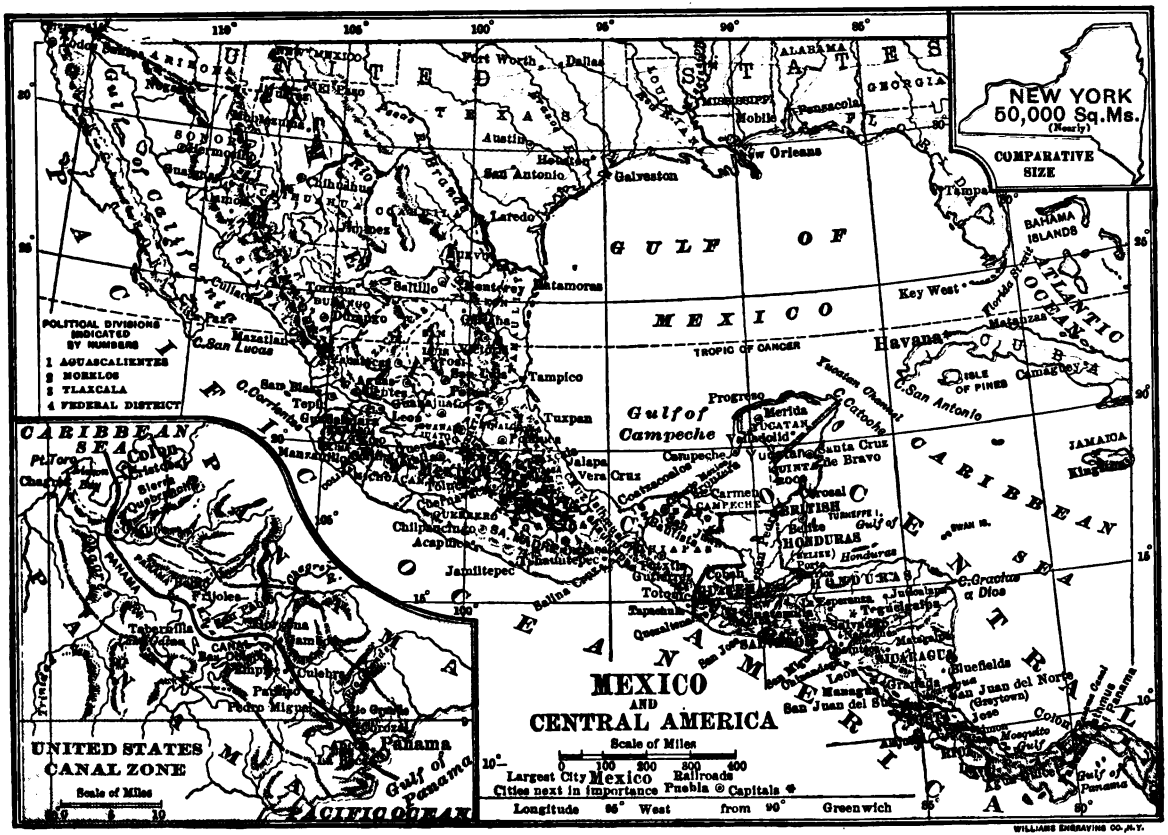

NEW YORK
50,000 Sq.Ms.
(Nearly)
COMPARATIVE SIZE
MEXICO
AND
CENTRAL AMERICA
Scale of Miles
0 100 200 300 400
Largest City Mexico Railroads
Cities next in importance Puebla ⊙ Capitals ⊛
Longitude 96° West from 90° Greenwich
POLITICAL DIVISIONS INDICATED BY NUMBERS
1 AGUASCALIENTES
2 MORELOS
3 TLAXCALA
4 FEDERAL DISTRICT
UNITED STATES CANAL ZONE
Scale of Miles
GULF OF MEXICO
CARIBBEAN SEA
PACIFIC OCEAN
ATLANTIC OCEAN
TROPIC OF CANCER
Gulf of Campeche
Gulf of Panama
BAHAMA ISLANDS
JAMAICA
WILLIAMS ENGRAVING CO. N.Y.

FIG. 97.

guayule (wy-u-lay) shrub has turned the waste places of Mexico into potential gold mines, by the amount of rubber it yields. It has three distinct advantages over other rubber plants: it grows on almost sterile soil in a healthful sub-tropical climate, it can be gathered all the year round, and it can be cheaply treated. Mexico sells $5,000,000 worth of rubber yearly.

Mining interests are large, for the mineral resources are extensive. Mexico is one of the leading silver countries, producing about $45,000,000 worth of silver a year. Gold and copper occupy the second and third rank, and the output of coal, lead, and petroleum is important. Foreign capital to the extent of $350,000,000 is invested in Mexican mines.

The scarcity of fuel has restricted manufacture by power machinery, and domestic handwork prevails. The natives are skilled artisans and produce blankets, cloaks, laces, leather goods, jewelry, and carved woodwork, which are among the best of their kind.

Transportation and Trade. — Primitive methods of transportation still largely prevail. The typical native carries burdens weighing over 150 pounds along rough trails. Most of the roads are only foot trails, and on great highways the porters, burros, pack mules, and clumsy carts are more numerous than modern vehicles. About 15,000 miles of railroad, mostly under government control, have been built. Two main lines traverse the plateau from north to south, connecting with the United States systems. Transverse lines are difficult and costly, and only two extend from sea to sea.

Mexico has a coast line of 2,800 miles on the Pacific and 1,600 miles on the gulf of Mexico and Caribbean sea. There are 24 ports on the Gulf coast and 31 on the Pacific, many of the former having steamship lines direct to the Gulf ports of the United States, New York, and Europe; the latter to the west coast ports of the United States and Canada, China and Japan. By rail, through connection between the roads of the United States and Mexico may be made at four points on the border; namely, Nogales, Ciudad Porfirio Diaz, Ciudad Juarez, and Laredo. From Guatemala City through railway service to Vera Cruz and Mexico City has been almost completed.

Vera Cruz and Tampico on the Gulf are the principal gateways to the sea. Acapulco and Manzanillo on the Pacific have good harbors,

but are difficult of access from land. The New York & Cuba Mail Line runs from New York to Tampico and Vera Cruz.

Germany and Great Britain have a greater trade with Mexico than the United States has. We buy copper, henequen, oil, hides, cattle, lead, coffee, rubber, and chicle, and sell her pumps, hardware, mining machinery, tools, railway supplies, copper manufactures, lumber, foodstuffs, clothing, and shoes. Our imports exceed our exports by $33,000,000.

People and Government. — The population of Mexico, about 15 million, is most dense in the states near the capital. *Figure 98* shows how it is made up. About one fifth are of European, chiefly Spanish, descent, two fifths are pure Indian, and two fifths are of mixed blood. The Indians and the poorer people of the mixed race form the laboring class; they work for the wealthy farmers, ranchmen, and mine owners. About 500,000 Indians maintain their habits and language. These have shown themselves superior to the black, and equal to some of the yellow and white peoples.

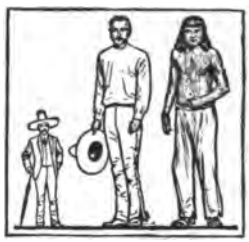


FIG. 98. The elements of the Mexican republic: whites, 3,000,000; half-breeds, 6,000,000; Indians, 6,000,000.

Mexico is a federative republic composed of 27 states, with three territories and one federal district, each managing its own local affairs, but all supposed to be bound together by a constitution. The national congress consists of a chamber of deputies of 233 members and a senate of 56 members; the executive and judicial branches are very similar in theory to those of the government of the United States.

The Republic of Cuba

Cuba, the largest of the West India islands, almost equals New York state in area and has one half as many inhabitants as New York City.

The climate varies. The healthful sea breezes mitigate what otherwise would be a tropical heat on the coast. The heat becomes less as one ascends the interior mountainous sections and plateaus. Here the thermometer sometimes falls to the freezing point in winter. Several

irregular mountain chains cross the country in various directions, forming between them a number of extremely fertile and healthful plateaus and valleys. Most of the rivers are too short and too swift for navigation, but the largest, the river Cauto, is navigable for about 50 miles, while the Sagua la Grande is also navigable for about 20 miles.

The republic is especially noted for the excellence of its tobacco and sugar, which constitute the most important articles of export. The forests contain valuable cabinet woods, such as mahogany and cedar. Iron, copper, and manganese mines are worked, gold is found, and there are also rich beds of asphalt.

FIG. 99. Sponge fishers at Batabano, Cuba.

Transportation. — Cuba is within easy reach of the United States, and numerous steamship lines ply regularly between the various ports of the two countries. Several lines have regular sailings from New York to Havana and some of the other Cuban ports, making the run in from four to five days. Regular steamers also leave Boston, Norfolk, Mobile, New Orleans, and Galveston for Havana, while Tampa and Key West have steamers two or three times a week for the same port. There are also European lines direct to Havana. The principal ports of the country are Havana, Matanzas, Cienfuegos, Guantanamo, and Santiago de Cuba.

Cuba, in proportion to its size, is one of the best served republics in America in respect to railroad transportation. Over 3,500 miles of track stretch from one extremity of the island to the other. In addition to these there are electric suburban lines extending from Havana to neighboring districts.

Trade Relations. — Cuba's principal exports are sugar, tobacco, minerals (iron, gold, copper, and asphalt), timber, fruits, hides, and skins. She imports foodstuffs, textiles, machinery, metals and

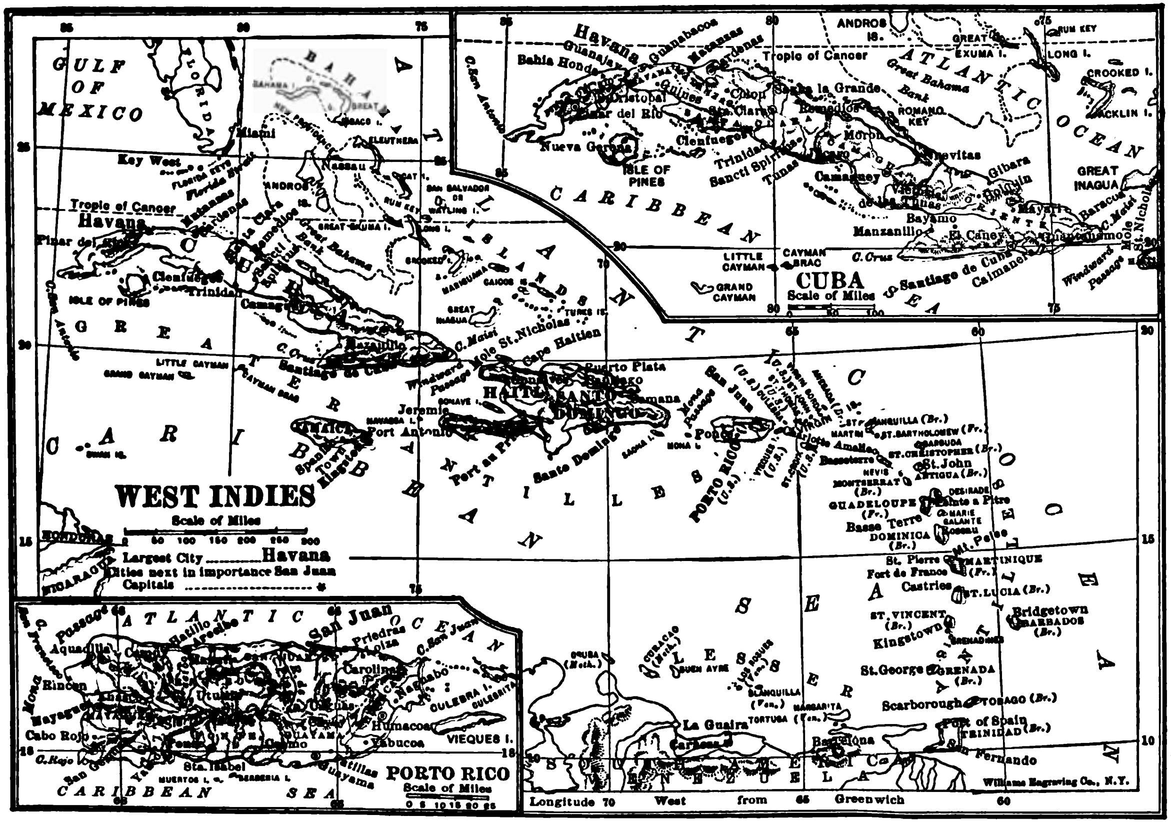

WEST INDIES
Scale of Miles
Largest City .... Havana
Cities next in importance San Juan
Capitals
GULF OF MEXICO
CARIBBEAN SEA
GREATER ANTILLES
LESSER ANTILLES
ATLANTIC OCEAN
BAHAMA ISLANDS
Tropic of Cancer
Havana
Key West
Miami
Nassau
Pinar del Rio
Cienfuegos
Trinidad
Camaguey
Manzanillo
Santiago de Cuba
ISLE OF PINES
Jeremie
Port Antonio
Port au Prince
Cape Haitien
Puerto Plata
Santo Domingo
Samana
Mona Passage
Windward Passage
PORTO RICO (U.S.)
San Juan
St. John
Basse Terre
Fort de France
Castries
Bridgetown
BARBADOS (Br.)
Kingstown
St. George
GRENADA
Scarborough
TOBAGO (Br.)
Port of Spain
TRINIDAD (Br.)
San Fernando
La Guaira
Caracas
Barcelona
VENEZUELA
Longitude 70 West from 65 Greenwich
Williams Engraving Co., N.Y.
CUBA
Scale of Miles
Bahia Honda
Guanabacoa
Matanzas
Cardenas
Nueva Gerona
Sancti Spiritus
Tunas
Nuevitas
Gibara
Holguin
Bayamo
El Caney
Guantanamo
Baracoa
Caimanera
GRAND CAYMAN
LITTLE CAYMAN
CAYMAN BRAC
GREAT INAGUA
PORTO RICO
Scale of Miles
Aguadilla
Arecibo
Rincon
Mayaguez
Cabo Rojo
Humacao
Yabucoa
Guayama
Sta. Isabel
VIEQUES I.
CULEBRA I.

Fig. 100.

manufactures, chemicals and drugs, animal products, wood and manufactures.

The island sends to the United States chiefly sugar, cigars, cigarettes, pineapples, bananas, and iron ore to the value of $263,990,000. In exchange we export to Cuba $235,000,000 worth of flour, lard, coffee from Porto Rico, and meats; machinery, shoes, carriages, and furniture.

Government. — The constitution provides for a republican representative form of government, divided into legislative, executive, and judicial branches. The senate and the house of representatives, forming together the national congress, are the legislative power. The former consists of 24 and the latter of 83 members. Senators are elected indirectly for a term of eight years, at the rate of four senators for each province. Representatives are elected for four years by popular vote, at the rate of one for every 25,000 inhabitants, every citizen over 21 years having the right of suffrage. Congress meets at the capital twice each year, each session lasting for at least 40 days. The president, assisted by a cabinet of eight secretaries, exercises the executive power. His annual salary is $25,000. Both the president and vice president are elected indirectly by an electoral college for a term of four years, and may not serve more than two consecutive terms.

The Republic of Panama

Surface and Products. — The isthmus of Panama, which comprises the republic of Panama and the Canal zone, forms the connecting link between Central America and South America. It has an area of 32,300 square miles and a population of 120,000.

Two mountain chains traverse the territory of the republic, inclosing a number of valleys and plains which afford excellent pasturage for cattle and in which all the products of the tropical zone can be raised. The slopes of the mountains are covered with extensive forests.

Among the products for export, bananas, rubber, cocoanuts, ivory nuts, cocobola wood, sarsaparilla, tortoise shell, mother-of-pearl, and hides are the most important. Considerable gold is mined and exported, and deposits of silver, aluminum, coal, lead, iron, asbestos, and

other minerals have been located. The republic buys textiles, iron and steel manufactures, shoes, flour, rice, and sugar.

Owing to its favorable location, midway between the two continents, Panama is easily reached, not only from North America, South America, and Central America, but also from Europe. Numerous steamship lines on both the Atlantic and Pacific oceans maintain a regular service with the ports of the republic. From New York the Hamburg-American, Royal Mail, United Fruit Company's, and the

FIG. 101. A 10,000-ton steamer approaching the Gatun locks from the Atlantic end of the Panama Canal.

Panama Railroad S. S. Company's lines all run to Colon, the trip consuming about six days. The United Fruit Company's line from New Orleans makes the journey in five days. On the Pacific the Chilean, Peruvian, Pacific Steam Navigation Company, and the Pacific Mail lines afford easy and frequent access to Panama.

The Panama Canal

History and Construction. — In 1903 the Republic of Panama proclaimed its independence of Colombia, and a few weeks later granted to the United States a strip of land, ten miles wide, running across the isthmus. For this strip, known as the **Canal zone**, the United States paid the republic $10,000,000 and agreed to pay $250,000 annually.

Figure 102 shows the three great tasks involved in the construction of the canal: the building of the Gatun dam, the erection of the double locks, and the cutting through Culebra mountain. There are six locks, three on the Atlantic and three on the Pacific side, which lift or lower a vessel 85 feet. These locks are in pairs and are about two city blocks long and half a block wide. Powerful electric towing machines move the ships through the locks, no vessel being permitted to proceed under its own steam.

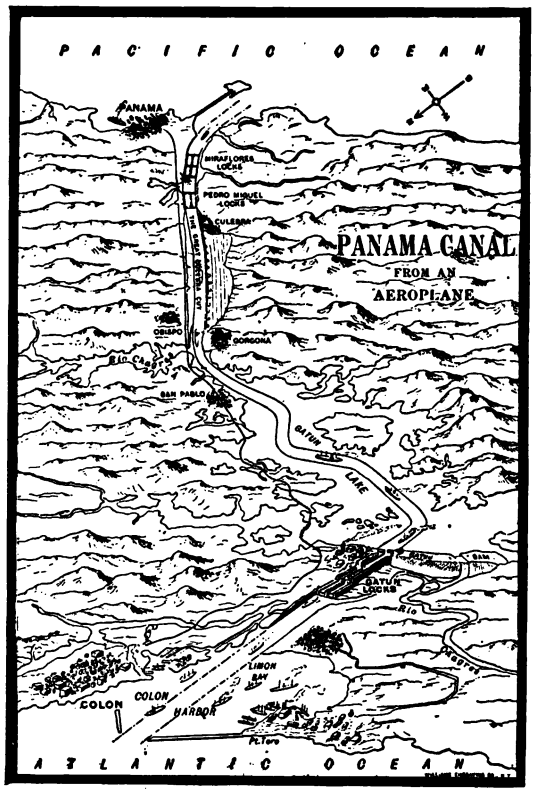


FIG. 102.

How a Vessel Passes. — We can follow the course of a ship through the canal on *Figure 102*. Entering from the Atlantic into Limon bay, the vessel steams for about seven miles through the broad channel until it reaches the Gatun locks. Four electric locomotives are attached by cables to the ship, two in front to pull it into the locks, while two are attached to the stern of the ship to draw it back if it should go too far, and to prevent it from ramming the lock gates. In passing these three locks, the vessel is raised 85 feet. For 22 miles she steams across Gatun lake, and for nine miles through the great Culebra cut, until she reaches the Pedro Miguel locks. By these locks the vessel is lowered 30 feet, and then by the Miraflores locks 55 feet more to the Pacific sea level. By steaming seven miles

farther, the vessel reaches the ocean, completing a trip of 50 miles in about 12 hours. In this way she has saved a two months' trip around Cape Horn, and in return her owners have paid about $6,000 in tolls to the government.

Commercial Advantages. — Before the canal was built, a Liverpool freighter could reach the western coast of South America more

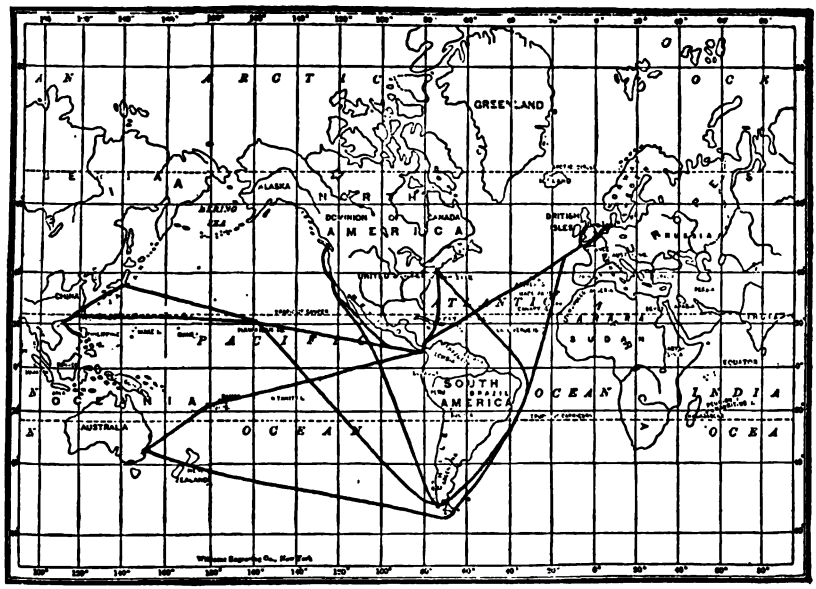


FIG. 103. How the great ocean routes are changed by the Panama Canal.

quickly than a ship from Savannah or Galveston. Now the manufactured cotton goods of the southern states can compete in Colombia, Ecuador, Peru, and Chile with German and English cotton goods. The steel manufactures of Alabama, and the lumber products, the cereals, and the ores of the south can be sold in South America, Australia, China, and Japan much cheaper than European goods.

The manufactured cotton, iron, and steel goods of the northeastern states can now be shipped through the canal to the Pacific coast states and to South American countries at one half the charge formerly

exacted for transporting them by rail across the continent. Before the opening of the canal, California, Oregon, and Washington could not send their lumber, fruit, fish, and grains eastward to the Atlantic states on account of the high railroad rates. Now these goods come eastward to the Atlantic coast and to Europe for one half the freight charges.

The South American countries, on the other hand, send through the canal their rubber, grain, sugar, wool, hides, nitrates, cocoa, gold,

FIG. 104. Drying coffee in the sun in Costa Rica.

silver, and copper to active markets in the United States. The splendid manufacturing and transportation facilities of this country make it always profitable to ship raw materials here for manufacturing purposes.

Figure 103 also shows how British Columbia benefits by the canal, sending its lumber, minerals, and grain to the Atlantic coast states and to Europe. Moreover, direct steamship service by way of the canal is carried on between New York and Vladivostok, Siberia, general manufactured goods and merchandise being shipped to the East. The new line is 10,100 miles long, but is 3,000 miles shorter than the Suez canal route. Consequently a freighter of average speed saves 12½ days at sea.

The Canal in 1918. — During 1918, in spite of the unsettled trade conditions due to the Great War, the Panama Canal had an active year. Nine hundred twenty-one vessels, chiefly British, United States, and Norwegian, passed from the Atlantic to the Pacific and 1209 vessels from the Pacific to the Atlantic. The cargo tonnage of these vessels was nearly four million tons. The revenues collected from owners amounted to $20,000,000, but the cost of maintenance, dredging, and repairs was so great that the canal's expenses amounted to $5,000,000 more than this sum.

Central America

Central America includes the six small republics,— Guatemala, Honduras, Salvador, Nicaragua, Panama, and Costa Rica — also British Honduras. The Caribbean coast lands are low, marshy, and unhealthful. The highlands lie near the Pacific and are densely populated, especially in the northern part. On the plateaus and mountain slopes, oak and pine forests and grassy savannas sustain the principal occupation of cattle raising.

The inhabitants are Spaniards, Indians, negroes, and the descendants of these races. Transportation is very limited; the roads are poor and most of the interior is unsettled. Coffee, bananas, rubber, cocoa, rice, sugar, and tobacco are among the products. Of the total foreign trade of the five republics ($76,000,000) the United States has about half. The United Fruit Company, which carries most of the fruit to the United States, has steamers touching at Porto Barrios and Limon. Other lines run from New Orleans, Mobile, and Atlantic ports, as well as from Europe.

REVIEW QUESTIONS. — (1) Why has Mexico so great a variety of vegetable products? (2) What use is made of chicle, henequen, and the guayule shrub? (3) Since Mexico is so great a corn country, why does corn not figure among her exports? (4) What will a vessel carry from New York to Tampico and Vera Cruz? (5) Discuss the methods of transportation in use in Mexico. (6) What does the United States sell to Mexico? What do we buy from her? (7) Compare the Mexican government with that of the United States. (8) From which United States ports could you steam for Cuba? (9) Discuss the transportation facilities of the island. (10) Compare the Cuban products with those of Mexico. (11) From a study of the exports and imports determine the industries of the people. (12) How does the Cuban government compare with that of the United States in organization? (13) How would you get to Panama from New York? (14) Discuss the commercial relations of the Central American republics with the United States.

CHAPTER XVI

SOUTH AMERICAN COMMERCE

South America is a wonderfully rich continent, which, from a commercial viewpoint, through lack of capital and enterprise has been lying idle. Its trade is bound to be tremendously important to the United States in years to come.

Surface and Climate. — South America is a simplified copy of North America, resembling it in its triangular form tapering southward, and in having a high western margin, low interior plains, and for the most part a low Atlantic coast. *Figure 105* shows that it is characterized by the smoothness of its coast line and the great size of its rivers. It has only one mile of coast to every 385 square miles of area, whereas North America has one mile of coast to every 160 square miles of area.

The Amazon, in area of basin and volume of water discharged, is the largest river in the world. Like North America, again, this continent has its principal slopes and its great commercial rivers all on the Atlantic side. It lies chiefly east of the longitude of New York, and both these conditions favor its trade, not with the United States, but with Europe.

South America is about one eighth less than North America in area, but it is equal to Europe and Australia combined. There are three regions of elevation: the Andean highlands on the west; the Guiana highlands between the Amazon and the Orinoco; and the Brazilian highlands south of the Amazon. The central lowland surface consists of the river valleys of the Orinoco, the Amazon, and the La Plata, the grassy pampas of Argentina, and the narrow coastal plain along the Caribbean sea and the Atlantic ocean.

As the greater part of South America is in the torrid zone, the prevailing climate is tropical, with two seasons, the rainy and the dry. In the southern summer the trade winds blowing in upon Brazil bring heavy rains in this region. The Amazon valley receives nearly 100 inches of annual rainfall. A heavy rainfall occurs on the Guiana high-

lands also. The western coast from Guayaquil to Valparaiso receives a very slight rainfall, but farther south this coast receives considerable rain from the westerlies. We must remember that in the southern part of this continent midsummer comes in January and midwinter in July. Here the climate is temperate.

Government. — All the South American republics have fundamental laws, or constitutions, modeled more or less closely after that of the United States. Laws are made by a congress composed of two houses, a senate and a house of representatives, or chamber of deputies. Members are almost invariably chosen by direct vote of the people, although there are several cases where the senators are chosen by a selected body of men. The chief executive is a president, whose term of office and manner of election vary in the different states. The great evil in South American politics has generally been the unwillingness of political parties to submit to the will of the majority. They are prone to stir up revolutions and to attempt to place their own candidate in office by force of arms.

The Argentine Republic is one of the five American republics which have adopted the Federal Union of States as its form of government, the others being the United States of America, the United States of Brazil, the United Mexican States, and the United States of Venezuela. All the other American republics have a unitary or centralized form of government.

Brazil

The Republic of the United States of Brazil is the largest of the South American countries, extending over an area of 3,000,000 square miles, or about 400,000 square miles less than the United States with Alaska. It touches every other South American republic except Chile. With 20,000,000 people, it has about two fifths of the population of South America. The greater part of the people are engaged in agriculture, and coffee is the greatest source of wealth for the republic. The value of the last export crop amounted to $226,000,000. Nearly four fifths of the world's product of coffee is grown in Brazil, in the southern part.

The tropical forests of the Amazon region produce huge quantities of rubber, the second greatest crop of the republic. Brazil-wood


Longitude West from Greenwich
SOUTH AMERICA
Scale of Miles
0 200 400 600 800 1000
Railroads
Capitals
Section on Latitude 15° South
Mt. Sorata
Mt. Illimani
ANDES MTS.
L. Titicaca
Paraguay R.
Matto Grosso
Sao Francisco R.
Sea Level
Pacific Ocean
PERU
BOLIVIA
BRAZIL
Atlantic Ocean
Feet in Thousands
Williams Engraving Co., N.Y.

and cocoa are also grown here. The middle coast region produces cotton and sugar cane. Among the minerals, gold and diamonds have long been Brazilian products. The vast mineral and forest resources are comparatively undeveloped as yet.

The cotton industry is growing in importance, but manufacturing is only in its beginning. Foreign capital, supplied by English and German investors, is gradually opening up the resources of this great region and in time manufacturing will be more important.

FIG. 106. The entrance to the Jardin da Gloria, Rio de Janeiro, Brazil.

Cities, Transportation, and Trade. — Rio de Janeiro, the capital, is the second largest city of the continent and the greatest railway center of Brazil. Santos and Sao Paula are the greatest coffee markets, while Para is the rubber port. Bahia and Pernambuco have an extensive trade in cotton, coffee, and sugar. Manaos is a considerable port on the Amazon, 1,000 miles from its mouth, and modern ships ply between it and Rio. The Amazon and the Parana afford 10,000 miles of river navigation for ocean vessels and 20,000 miles additional for light craft. Along these the rubber and lumber come to the coast. Some 15,000 miles of railroad lines are in use, most of them very short

lines. The Lamport & Holt Line, the Booth Line, the Lloyds Brazileiro, and the Prince Line carry passengers and freight from New York to Brazilian ports.

Europe takes 57 per cent of Brazil's coffee. The United States buys the remainder, about two thirds of this going to New York. The United States buys three times as much from Brazil as she sells to her. Great Britain and other European countries take far less and yet supply the bulk of Brazilian imports. "The United States invents, Germany manufactures, and Brazil buys" is a well-known saying. This is due to the poorer shipping connections with the United States and to American ignorance of the Portuguese language. Rio, for example, is 23 days from New York, while English and German vessels reach the city in 15 days. We take $120,000,000 worth of coffee, cocoa, skins, and nuts every year, and sell Brazil $43,000,000 worth of iron and steel manufactures, flour, oil, clothing, and machinery, such as sewing machines, automobiles, cars, and locomotives.

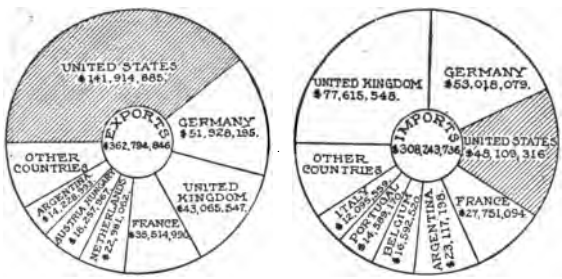


FIG. 107. The foreign commerce of Brazil. Note the difference between her exports to and imports from the United States.

The desire of the Brazilian government to enhance to the largest proportions the volume of imports from the United States is shown by the law creating a discount of 2 per cent from the regular tariff duties for the following American articles: condensed milk, manufactures of rubber, clocks, and watches; paints, varnishes, typewriters, refrigerators, pianos, scales, windmills, cement, dried fruits, school furniture, corsets, and desks; and a discount of 30 per cent from the regular duty for American flour.

Venezuela

Industries and Resources. — This republic lies entirely north of the equator amid tropical conditions. It possesses 2,000 miles of

coast line and many harbors. The northern part is crossed by the Andes and the southern part by the Guiana highlands. Between these lie the great plains of the Orinoco basin. The high plateaus and valleys in the northwestern part shelter most of the population, contain the large cities, and support the large coffee plantations, fields of grain, and fruit sections. South of this region are the llanos, where the hot and rainy season lasts from April to October.

Agriculture, grazing, and the gathering of forest products are the chief industries. Coffee is the great crop of the hill country and is the staple article of export. Cacao and sugar cane are raised. Cattle, horses, sheep, and swine find abundant pasturage on the llanos, but their hides and beef are of low grade. Rubber is gathered in the forests. Coal and iron are abundant, but the mines are little worked. Copper, salt, and gold are found, and large deposits of asphalt near the coast.

Cities, Transportation, and Trade. — Venezuela has a number of excellent harbors. La Guayra, Puerto Cabello, and Maracaibo are the principal ones. La Guayra is the port of Caracas. Maracaibo gives its name to the kind of coffee exported. Ciudad Bolivar is the only important city on the Orinoco. The river is navigable for the largest vessels up to this point, and forest products, cattle, and gold are shipped from this city. The chief cities of Venezuela — Caracas, Valencia, and Barcelona — are built at a considerable distance inland, away from the unhealthful coast. They are connected with the nearest seaport by railroad.

Venezuela's means of transportation are poor, except that in boats on the Orinoco. Pack animals are widely used. The railroad lines are short and give poor service. Several steamship lines, among them the Red " D " Line, maintain regular service with New York.

The foreign trade is with the United States, Great Britain, Germany, and Spain. Venezuela buys cotton goods, hardware, flour, tools, and kerosene, and exports coffee, cacao, hides, asphalt, and rubber.

British Guiana, Dutch Guiana, French Guiana

These countries lie along the Atlantic coast between Venezuela and Brazil. The interior is covered with dense forests containing

valuable woods. The principal product is sugar, though the rivalry of the beet-sugar industry in Europe has forced many sugar planters to turn their plantations into rice and tobacco fields. The mineral resources include gold and diamonds. Bananas, sugar, cacao, and coffee are the chief products. The trade of Guiana is unimportant, but this, like other tropical lands, will be capable of vast production when utilized by progressive people.

REVIEW QUESTIONS. — (1) Compare the rainfall of the western coasts of North America and South America. (2) What difference would it make if South America were 20° farther south? If the Andes were along the Atlantic? (3) What difference would it make if the Amazon ran north and south, emptying into the Caribbean? (4) Why is the Amazon of less commercial importance than the St. Lawrence? (5) Make a list of the chief uses to which rubber is put. (6) Why do Germans and Italians make desirable Brazilian immigrants? (7) On an outline map draw the trade routes between each Brazilian port and the foreign cities with which it trades. (8) Discuss the chief industries of Brazil. (9) Why is manufacturing still in an undeveloped state? What changes in the foreign trade are likely to result when the manufactures are developed? (10) Compare the size and population of Brazil with those of the United States. (11) What can you say about the transportation facilities in Brazil? (12) What part does the United States play in her commerce? (13) How would you get to Venezuela from New York? (14) Why should the highlands of Venezuela have a denser population than the lowlands? (15) Discuss the Venezuelan trade with the United States. (16) Why is asphalt becoming so important commercially?

Colombia

The Andes Countries. — This republic has a seacoast bordering on the Pacific and the Caribbean, and as a consequence and because of its relation to the Caribbean trade, it does a relatively larger business with the United States than is the case with most South American countries. It is about nine times the size of New York state, but has a population equivalent only to that of New York City. Lofty mountain ranges lie in the western part, the eastern part consisting of llanos. As in Mexico, the mountain slopes are divided by the altitude into three zones: a hot, a temperate, and a cold zone. In the lower belt, bananas, sugar cane, and cacao are grown; in the temperate, coffee and corn; in the cold belt, wheat, potatoes, and northern fruits. The llanos support herds of cattle, and in certain districts tobacco is raised.

The industries are chiefly agricultural, although but a small por-

tion of the fertile soil is under cultivation. Valuable mineral resources, including gold, silver, copper, and iron, are found, but as yet these have been developed very little.

Cities, Transportation, and Trade. — Cartagena, a fruit-shipping point for the United Fruit Company's freighters; Barranquilla on the Magdalena river, with Puerto Colombia as its entry port, and Santa Marta are the chief cities on the Caribbean. Bogota is an inland city. The chief route of transportation is the Magdalena, which is navigable for 600 miles, and the tributary streams are likewise navigable for some distance along their courses. Other transportation facilities are poor. A few short lines of railway extend from the coast towns inland, but mule trains are used to transport goods along the wretched roads of the interior from the river landings to the centers of population.

FIG. 108.

The chief imports, cotton goods, shoes, tools, machinery, flour, and petroleum, are secured from the United States. Coffee forms the export of largest value. Rubber, cacao, tobacco, hides, gold, silver, and Panama hats are also exported, chiefly to Great Britain and Germany.

Ecuador

Though the country is located on the equator, the great altitudes produce a moderate climate throughout a great part of Ecuador. The coast lands are hot and unhealthful, and the heavy rainfall of the eastern slopes causes them to be heavily forested. Cinchona, rubber, gum, and dyewood trees are found here. Cacao is the staple product, but coffee, sugar, and cotton are also grown. Gold, copper, and silver mining is carried on, but in general the mineral resources are but little developed. Insufficient population and lack of good roads are the chief causes of the poor development of the country.

Guayaquil is the seaport of the country; Quito, the capital, lies on the equator and is 115 miles inland. The Panama canal is gradually increasing the trade with the United States, but now it amounts to only $5,000,000 a year. Tools, machinery, shoes, and cotton goods are sent down. Cacao is the chief export, and cinchona bark, from which quinine is extracted, Panama hats, sarsaparilla, rubber, and coffee are also exported.

Peru

This republic, larger than Ecuador, has large agricultural and mineral resources. The elevation of the inhabited regions of country affords them a temperate climate, while the long strip of lowlands on the Pacific is a rainless desert. Cotton of excellent quality is grown. Sugar is produced and coffee raising employs many of the Indians. Coca, from which the drug cocaine is derived, is a product. In the higher regions, wheat and corn are grown. Peruvian bark or cinchona is widely grown, as well as rubber, in the Amazon forests. Silver, gold, copper, lead, zinc, and mercury are among the products of the mines.

The eastern section of the country — high plateaus — is well watered by tributaries of the Amazon. The high plateaus are, next to those of Tibet, the highest occupied lands in the world. On them are large towns such as Cuzco (11,380 feet), and many prosperous communities. Steamship lines run from Callao, the Pacific port, to San Francisco, Genoa, and English ports. On the east side ocean steamers can run up from the Amazon to Iquitos, 3,000 miles from the Atlantic

coast, and light-draft vessels go still farther. This country, like the other Andean states, needs capital to build railroads — it boasts of but 1,100 miles — and develop its resources. The Panama canal is promoting better trade relations with the United States, which now has only a small portion of Peru's trade.

Bolivia

This republic is handicapped, like Paraguay, because it possesses no seacoast and no outlet except through other countries. It consists in part of a lofty plateau and in part of broad slopes and plains drained by the Madeira, the great southern branch of the Amazon. The range of altitudes introduces agriculture of both temperate and tropical types. Agriculture and mining are the chief occupations of the people, half of whom are Indians. Coffee, rubber, sugar, and cacao are produced. It has large mineral wealth in copper and silver. It exports one quarter of the world's tin. The lowlands and plains are fertile, and many of them contain dense forests, from which cinchona bark and dyewoods are obtained. Transportation inland is very limited. Among routes for foreign trade are the following: a rail line running from Arica on the Peruvian coast to La Paz, the chief city; the Amazon-Madeira route, entirely by river navigation down to Para in Brazil; to Buenos Aires by river, or by mule train to the Argentine frontier, and from there by railway to the coast. Bolivia exports tin, rubber, silver, copper, coca, zinc, and lead, and buys tools, railway supplies, clothing, foodstuffs, and coal.

REVIEW QUESTIONS. — (1) Account for the great variety of vegetable products in Colombia. (2) What exports will the United Fruit Company's freighters carry to the United States? (3) Why are Colombian transportation facilities so poor? (4) What does the United States sell to Colombia? (5) What products are made from cinchona, coca, sarsaparilla, and cacao? (6) What changes will tend in the future to develop Ecuador? (7) Describe the surface of Ecuador. (8) Why does the United States enjoy so little of the Peruvian trade? (9) Why does Peru send $4,000,000 worth of copper to the United States, a copper-producing country? (10) Describe the other trade relations of Peru with the United States. (11) What industries chiefly occupy the Bolivians? (12) How would you ship Bolivian products to the United States? (13) Show how the Panama canal is benefiting the trade of the United States with these Andean countries.

Progressive Argentina

This country is the third in size of American republics and resembles the United States in affording products both of temperate and subtropical climate. Its surface resembles that of the prairies and plains of the Mississippi valley. The Argentine plains stretch northward along the river Plata and southward through Patagonia.

The republic is almost wholly agricultural on account of these surface conditions and the absence of sufficient coal, iron, and water power. Barely one tenth of the arable land has as yet been used. The republic is now the greatest exporter of corn and frozen meats in the world, second in wheat exportation and second in wool shipments. The conditions there as regards immigration and rapid development are very similar to those in Canada. Eleven million mulberry trees are feeding silkworms and over $12,000,000 worth of wines are produced annually. The grazing industry is being pushed toward the west, a condition similar to that we found in the United States; and the land thus freed is given over to tillage, and wheat and corn crops. Out of a total population of seven million, one third are foreign born. One out of every six persons is an Italian.

The chief industry is cattle raising. The sheep industry is increasing in importance yearly; only Australia now exceeds Argentina in the amount of wool produced. The timber resources in the warmer regions of the north are very great, but require adequate transportation facilities to be developed. Gold, silver, and copper are exported to Europe, and petroleum wells are being worked. Manufactures are very limited on account of the lack of fuel and power.

Argentine Transportation. — The flatness of the country makes the rivers navigable and favors the building of railways. Over 20,000 miles of track have been laid. A line connecting Rosario with La Paz in Bolivia opens up the grain country and also reaches the center of a considerable sugar industry. Westward a line extends to Mendoza and now connects, across the Andes, with Valparaiso and the Pacific coast. Important roads occupy the plains southward from Buenos Aires to Bahia Blanca.

Among American steamship lines connecting the republic with the United States are the Lamport & Holt Line, the Norton Line, the

Prince Line, and the freighters controlled by Barber & Company. All these lines dock at New York. Faster ships, and in greater number, carry on traffic with Liverpool, Bremen, Hamburg, Bordeaux, Barcelona, Marseilles, and Genoa. Ocean connection with Italy has grown rapidly because of large Italian immigration and the resulting desire for Italian merchandise.

We have already learned the great importance of return cargoes for vessels of a merchant marine carrying goods to any region. Unless

FIG. 109. The Avenida de Mayo in Buenos Aires, the New York and Chicago of Argentina.

a return cargo can be secured the vessel must return in ballast at a loss to the owner. The lack of sufficient return cargoes to transport to the United States, except during the coffee months, together with the absence of branch banks, has been the chief obstacle to the United States in her struggle with England and Germany for the trade of South America. This condition causes ships in the Argentine trade to make triangular voyages. They start from Europe and carry goods to the United States, they carry American products to South America,

and they take on Argentine products and return to European ports. In this way there is little important or profitable carrying back and forth of products directly. Argentine beef is now changing this condition, since the United States is importing frozen meat. This would give every American ship a return cargo.

Cities and Trade. — Buenos Aires, "the Paris of America," with 1,250,000 people, is not only the chief port, but the largest city in South America. It contains the largest meat refrigerating plant in the world, and sends abroad more chilled and frozen meat than any other city. Rosario, Parana, and Cordova are the markets for the surrounding farming regions. The excellent harbor at La Plata handles a larger amount of freight every year.

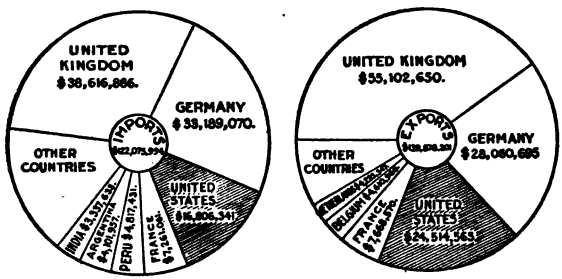


FIG. 110. The foreign commerce of Chile in 1912. Note the very small share of her trade enjoyed by the United States.

The annual foreign trade is over $900,000,000, thus exceeding that of Brazil, a larger and a richer country. Argentina buys machinery, steel, clothing, shoes, and tools from Great Britain, Germany, France, and the United States. The republic exports wool, hides, chilled beef, corn, wheat, and flax. England sells $100,000,000 worth of goods to her every year because about $1,000,000,000 worth of English capital is invested in Argentina. The United States sold her, in 1918, $109,000,000 worth of goods, and bought $195,000,000 worth. We send her farm implements, automobiles, cars, carriages, engines, soap, furniture, and sewing machines.

Enterprising Chile

Chile is chiefly on the narrow slope of the Andes, the longest and narrowest country in the world. It is more than twice as large as England, Ireland, and Scotland. Through nearly all Chile's length, the Andes extend in two parallel lines, having a central valley between

them. The northern part is largely a coast-land desert, but this region has a very valuable product in its extensive deposits of nitrate or saltpeter, in great demand as a fertilizer when converted into nitrate of soda. The small extent of fertile soil is well cultivated by the active people and yields excellent results. This farming land is confined to the flood plains of the short rivers, a mile or two in width.

Irrigation is very successfully employed. Wheat, barley, fruit, and other crops are grown in sufficient quantities not only for home consumption, but also for export to the northern republics. Cattle

FIG. 111. The harbor of Valparaiso, the chief port of Chile.

grazing and sheep raising are also carried on. Lumbering is an active industry in the southern part of the republic, where the rainfall is heavy. Mining is extensive; the copper production is next in value to that of nitrate. Coal, silver, and lead are also found.

Transportation, Cities, and Trade. — Railroad development is very advanced in Chile, the lines reaching out along the coast, parallel to the Andes and across the range from Valparaiso to Buenos Aires on the Atlantic coast. This transandine road reaches an elevation of

10,000 feet and passes through a tunnel more than six miles long. The republic possesses nearly 1,000 miles of navigable rivers and about 15,000 miles of public roads.

Santiago, the capital, is located at the base of the Andes. It is connected by rail with the chief city and commercial seaport, Valparaiso. This controls a splendid harbor, which is the terminal point for several steamship lines from Europe. The Panama canal now lessens the traffic around the cape and increases the trade from the north.

Chile sends out nitrate of soda to the value of $80,000,000, copper, wheat, iodine, and oats. She buys textiles, coal oils, machinery, hardware, and railway supplies. Tools, machinery, and railway material are largely imported from the United States. Much American capital has been invested in mining, and American influence is growing.

Uruguay

This tiny country with only one million people is nevertheless fourth in importance among the South American republics in its trade. It does ten times as much foreign business as Paraguay. The long rolling plains make it naturally suited for both sheep and cattle, the raising of which is the principal industry of its large foreign population. Agriculture is also practiced considerably, nearly all the cereals being grown. In the forests are a number of excellent cabinet woods, and some mining is carried on. At Fray Bentos is the plant of the Liebig Company, where the beef extract is prepared.

Uruguay is easily accessible, its capital and chief port, Montevideo, being situated on the Rio de la Plata not far from its mouth in the Atlantic, where the largest ocean vessels may dock. From New York the Lamport & Holt Line has regular sailings for Buenos Aires, stopping at Montevideo *en route*. Almost all of the large passenger steamers of the European lines make Montevideo direct, while there is a regular nightly steamship service between Buenos Aires and the Uruguayan capital. Three lines of railway connect the country with Brazil.

Uruguay sells wools, hides, meat, tallow, and flour, buying food products, textiles, manufactures, and tobacco. The United States has barely one tenth of its trade.

Paraguay

Lack of transportation to the coast prevents the development of this republic's resources. The soil and forests will permit of excellent working when railroads are provided. For this reason tobacco, oranges, hides, and maté, or Paraguay tea, are the few exports, while the wheat and much of the foodstuffs have to be imported from Argentina. The United States trade with Paraguay is almost negligible.

The country is reached by regular lines of steamers from Buenos Aires, and also from Montevideo, up the La Plata, Parana, and Paraguay rivers, to Asuncion, the capital.

REVIEW QUESTIONS. — (1) How does Argentina resemble the United States in physical features? (2) What industries occupy the Argentines? (3) Account for the activity and progressiveness of the people. (4) Why are railways so numerous in Argentina? (5) How would you get to Buenos Aires? (6) Why must freighters always secure return cargoes? How does this fact affect our trade with Argentina? (7) Describe our trade relations with this country. (8) What does Argentina take from Europe and what does she send in payment? (9) Why have Great Britain and Germany so large a share of the Argentine trade? (10) Why do manufactures form so large a part of her imports? (11) Describe the industries and products of Chile. (12) Why do her rivers afford little facilities for transportation? (13) Why does the United States enjoy so small a proportion of the Chilian trade? (14) Where do Chile and the other mining republics secure the money to open up and operate their mineral deposits? What are the mineral products of Chile? (15) Discuss the trade of the United States with Chile. (16) Discuss the resources of Uruguay which explain her brisk commerce. (17) Give reasons for the more rapid development of Uruguay as compared with that of Paraguay.

CHAPTER XVII

THE TRADE OF GREAT BRITAIN AND GERMANY

The Physical Features of Europe. — *Figure 115* shows us at a glance one great reason for the commercial development of western Europe; it is the deeply indented coast line by which almost every part of the continent is within easy reach of some good harbor. There is one mile of coast line to every 150 square miles of area — the best coast line of any continent. North America has one mile to every 160, and Africa one mile to every 595 square miles. The surface structure is composed of two mountain systems enclosing a central plain. The northern system stretches along the northwestern coast through the British Isles and the Scandinavian peninsula. The southern and loftier system, made up of a number of ranges, extends across the southern part in a general east-west direction. Between these two systems lies the central plain, increasing from a narrow strip in Spain to a width of 2,000 miles in Russia.

Climate. — Owing to the nearness of the ocean and to the numerous inland seas, as well as to the prevailing winds and the nature of the surface of Europe, the climate, when the same latitudes are considered, is in contrast with that of any other continent. There are no mountain ranges running parallel with the ocean to cut off the moisture, and hence there are no arid areas in the interior, as in other continents. Northern and central Europe lie within the region of the westerly winds. These winds, laden with warmth and moisture from crossing the Atlantic ocean, traverse the continent north of the primary highland system. As the winds at this latitude are not intercepted by high mountains, they give up their moisture very gradually, so that nearly all parts of Europe receive enough rain for successful farming.

The United Kingdom

The British Isles are politically known as the United Kingdom of Great Britain and Ireland. The British Empire, made up of the

United Kingdom and Ireland with all the British colonies, controls more than one fifth of the land area of the globe and one fourth of the world's population.

Surface and Climate. — Eastern England has a broad, smooth surface sloping toward the southeast and broken by low hills and rolling uplands. The western division, more broken and rugged, includes all that part of England and Scotland north of the mouth of the Tees. The rainfall is over 60 inches in the western highlands and about 28 inches on the eastern lowlands. The mild climate is favorable for labor and agriculture, and the areas of good soil are large.

The United Kingdom is so close to continental Europe that commercial exchange is easy, and a short ocean track joins it to the United States and Canada. Good harbors are frequent, bays and estuaries run far inland, and their heads connect by short routes with one another as well as with inland cities. In area Great Britain is slightly larger than Ohio and the southern peninsula of Michigan, while Ireland is slightly smaller than Indiana. London and Bristol are only 110 miles apart. Liverpool and Hull are separated by the same distance, while Glasgow is only 40 miles from Edinburgh. There is no point in the island as much as 100 miles from the sea. Nature has planned it for a center of maritime commerce and sea power.

The islands are separated from the mainland by the strait of Dover, which in its narrowest part is only 22 miles wide. This narrow but stormy and dangerous passage has served to protect the island empire against invasion during the many wars which have embroiled the continent, thus aiding it to develop into one of the mightiest nations of the world. The insular position of the British has made them a race of sailors and traders; the natural resources of the country have led to the growth of farming, mining, and manufacturing; and the physical and intellectual activity of the people has made the country a center of wealth, education, and culture.

Industries and Manufactures. — The industries of England are determined by the character of the two surface divisions. The eastern section is an agricultural and grazing region, while the western division hides beneath its rugged surface vast stores of coal and iron. Even though the farm lands by careful tillage are made to yield twice as much per acre as those of the United States, the crops fall far short

FIG. 112.

Williams Engraving Co., N.Y.

of the needs of the people and large quantities of foodstuffs are imported. Indeed about $50 worth of food is imported for each person in the United Kingdom yearly. The population of England and Wales has doubled in the last 50 years, and in many agricultural products the movement is backward. During the Great War, the large estates and grazing lands were plowed and sowed and every piece of soil was cultivated to offset the food shortage. Many women were used in this work while the men fought in France. Oats, barley, wheat, and vegetables are the leading crops. The highlands and the plains, unfitted for agriculture, support great numbers of cattle and sheep, especially in the Scottish mountains. Four fifths of Ireland is pasture land.

The fishing industry, taking cod, flounder, haddock, and herring from the neighboring waters, sends quantities of fish to the centers of population, and the catch is so large that there are also heavy exportations.

The development of the great manufacturing industries is very closely connected with that of the mineral and metal industries. Coal is mined in many localities, from the south of Scotland to the English channel and southern Wales; and it has been mined for so long and so freely that the supply has been greatly reduced. The chief English coal fields are six in number: the Newcastle field, the West Riding district, the Midland basin, the Lancashire field, the Cumberland basin, and the fields around Bristol. The South Wales field supplies the iron, tin plate, and copper industries of Cardiff. From Cardiff vast quantities of coal are exported to British coaling stations in all parts of the world. The Scottish fields supply Glasgow and export to Ireland and the Baltic. Fifteen million tons of iron ore are mined in Great Britain yearly and eight million tons are imported from Spain and Sweden. Many of the British iron centers, like Birmingham, Sheffield, and Wolverhampton, are on the coal fields, and in no case is the distance from coal so great as to be a serious handicap where transportation both by land and water is so highly developed as in the United Kingdom. Cornwall and Devon are the chief European sources of tin. The production of copper, gold, and silver is negligible.

The cotton industry centers in Manchester and the surrounding towns in Lancashire. The cotton comes from the United States, Egypt, and other lands, the coal from the Lancashire fields, while the warm, moist sea winds maintain a high degree of humidity in the air

and favor the handling of the cotton fiber. Leeds, in Yorkshire, about 40 miles northeast of Manchester, is the chief center of the world's woolen manufacture. This city is first in the wholesale clothing trade in Great Britain. Many towns in this district engage in special forms of woolen manufacture and Bradford works in silk velvet, and plush goods. Woolen hosiery is more largely made in Leicester than elsewhere. In Scotland as in England, textiles have a large place, and this applies to cotton, woolen, and linen goods. The lowlands here have in close association coal, iron, and shipping facilities, with intelligent and industrious labor. Glasgow is the cotton center. The words "cheviot," "tweed," "frieze," "tartan," and "plaid" suggest types of Scottish cloth manufacture which are everywhere known.

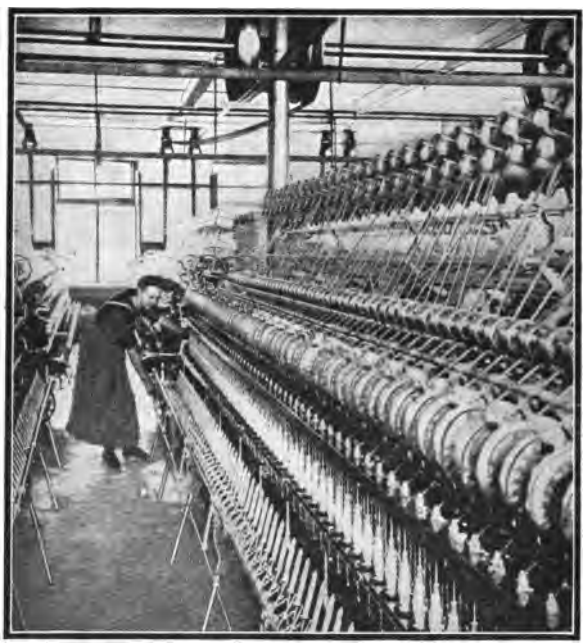


FIG. 113. A spinning machine in one of the great cotton mills at Manchester, England.

Ireland is handicapped by small supplies of iron and coal, so that manufactures are limited. Flax is grown in the north in connection with the linen industry. Belfast leads in the weaving of the finest linens. Great yards for the building of war vessels and transatlantic liners are at Belfast also, and others at Glasgow. England, formerly the leading manufacturing country of the world, has now lost her supremacy to the United States.

Transportation. — The construction of splendid means of transportation was begun in these islands by the Romans 2,000 years ago. You will note in *Figure 112* how the railroads to-day run out from London just as the old Roman roads did. On the south and east the roads are short, but on the west and north they run to the extreme limits of England. Twenty-five thousand miles of rails make a great network all over the United Kingdom. Passenger travel is enormous,

FIG. 114. The Thames embankment at London.

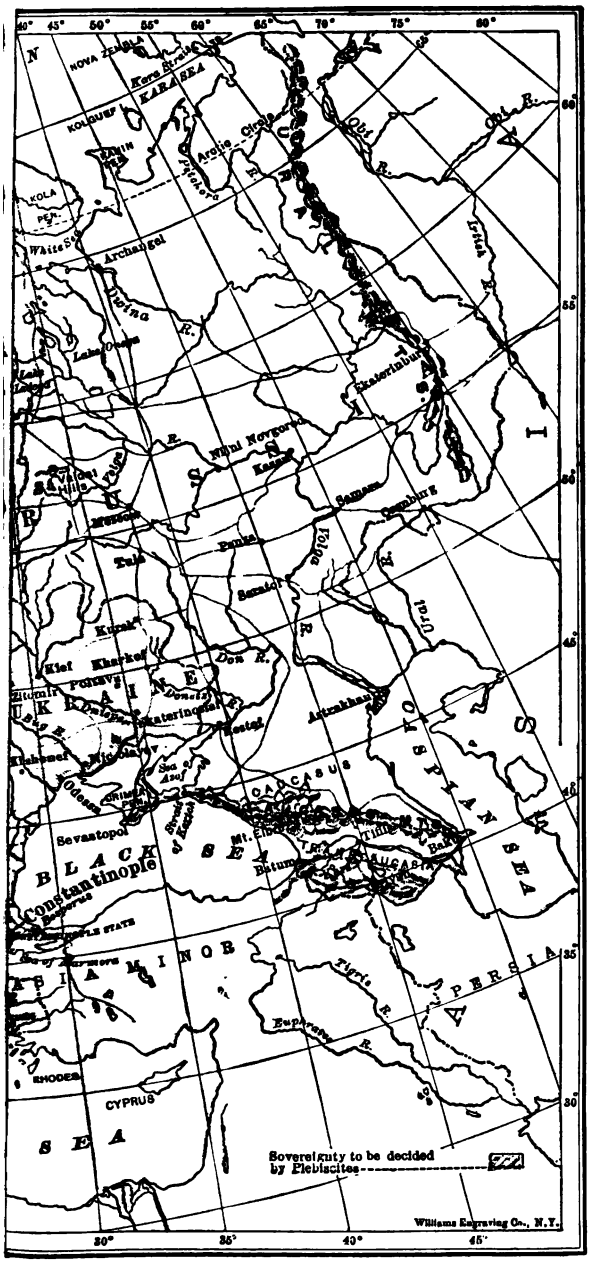
but much smaller freight cars are used than in the United States, to suit the local trade and the short-distance traffic.

The Manchester ship canal, opened in 1894, has a length of 35 miles and a depth of 28 feet. It connects both with the sea and with the large canals of the interior and releases the great cotton trade of Manchester from dependence upon Liverpool. Although England and Wales have 4,000 miles of canals, the competition of the railways has made them of little importance.

Cities. — London, the financial center of the empire, is the most important commercial city of the world. It is located at the head of navigation on the estuary of the Thames. Large ocean steamers can-


POLITICAL MAP OF
EUROPE
Scale of Miles
0 100 200 300 400
Largest City in each Country___London
Cities next in importance______Liverpool
Capitals
Railroads
ARCTIC OCEAN
ATLANTIC OCEAN
NORTH SEA
BAY OF BISCAY
North Cape
Hammerfest
Tromsø
LOFODEN ISLANDS
The Maelstrom
Arctic Circle
Reikiavik
ICELAND
Mt. Hekla
FAROE ISLANDS
SHETLAND ISLANDS
ORKNEY ISLANDS
HEBRIDES ISLANDS
BRITISH ISLES
Belfast
Dublin
Cork
Cape Clear
St. George's Channel
Land's End
Cardiff
London
English Channel
CHANNEL ISLANDS
Brest
Paris
Bordeaux
Cape Finisterre
Oporto
Valladolid
Lisbon
Madrid
Cape St. Vincent
Strait of Gibraltar
Cadiz
Barcelona
BALEARIC ISLANDS
MINORCA
MAJORCA
IVIZA
CORSICA
SARDINIA
Naples
Mt. Vesuvius
Mt. Stromboli
LIPARI Is.
Mt. Etna
Palermo
SICILY
Cape Bon
MALTA
IONIAN SEA
Cape Matapan
CRETE
Belgrade
Bergen
Stavanger
Christiania
The Naze
Skagerrack
Gothenburg
Hamburg
Berlin
Brussels
Cologne
Dresden
Munich
Zurich
Warsaw
POLAND
LITHUANIA
Kovno
Memel
Bialystok
Lodz
ALGERIA
AFRICA
TRIPOLI
Longitude West from Greenwich
Longitude East from Greenwich

FIG. 115.



not approach within 20 miles of the city. It is the railroad center of England and a great distributing point, with a shipping movement of 20 million tons annually. It distributes foreign goods to all parts of the kingdom and reexports merchandise from all parts of the world to continental countries and elsewhere. The metropolis of the world now numbers over 7,200,000 people. Liverpool, on the Mersey, receives the largest ships. This is the great port for the United States and has a vast import trade in wheat, cotton, iron, lumber, and tobacco. Steamship lines connect with Canada, Africa, India, Australia, and all Mediterranean ports. The Cunard and the White Star Line steamers dock here. Bristol, once a port second only to London, is now building new docks to win back some of its lost trade.

Cardiff, Newcastle, and Swansea are coal-exporting points. Southampton is the most important port on the south shore and the terminus of the American Line.

Glasgow is the second city in the kingdom. The development of adjacent coal and iron fields and the dredging of the Clyde account for its growth. The trade has grown largely out of commercial relations with America, and many steamships from the St. Lawrence dock there. Leith is the port of Edinburgh, being only two miles from that city. Edinburgh is not an industrial city, but considerable exports of coal and iron here reach the sea, and it has shipping relations with Germany, Denmark, and the Netherlands. Dublin and Belfast, the chief seaports of Ireland, are both on the east coast, since the trade of Ireland is mainly with Great Britain.

Commerce. — The United Kingdom, with her merchant marine surpassing that of all other countries, with her world-wide colonies, and with the need of importing most of her food and raw material, has built up the largest trade of any nation. Her situation in the center of the land masses of the northern hemisphere is a great advantage. This trade amounts to $5,000,000,000 yearly. She buys grain, flour, cotton, wool, sheep, meat, sugar, butter, lumber, silk manufactures, and a dozen other commodities to the value of more than $50,000,000 each yearly. Cotton manufactures are her largest export. Woolens and worsted come next, then linen, metal work, ships, pottery and china, hardware, and coal. Being a small country with a large population, Great Britain must buy the world's raw material in this way and sell the finished products in the world's markets. So long as her stores of iron and coal last she may continue to be a great industrial nation, whether supreme or as one among others.

From the United States she buys $600,000,000 worth of cotton, meats, wheat, copper, tobacco, petroleum products, and machinery of all kinds. She sends us $300,000,000 worth of rubber, tin, wool, tea, and diamonds, all of which she brings from her colonies and reëxports. This explains how her imports are so far in excess of her exports. In addition we buy her manufactured cotton, laces, embroideries, linens, iron, leather, clay, and wool manufactures.

The United Kingdom is virtually a free-trade country. It has no protective tariff such as that maintained by the United States, and

customs duties are collected only on the following articles: tea, coffee, wine, spirits, tobacco, sugar, cocoa, and chicory. Her largest trade is with her colonies and dependencies, of which India, Egypt, Canada, Australia, and South Africa are the most important. Then in order comes the trade with the United States, France, Germany, Holland, Belgium, and Russia.

The English flag flies over more than half the ships afloat. These not only carry away manufactured goods and bring home foodstuffs and raw materials, but do a large part of the carrying business of other countries, especially that of the United States. Since such a fleet requires protection, the British navy almost equals in strength the navies of all the other nations combined, and rules the seas. Britain's islands, ports, and coaling stations command most of the oceans and trade routes. The great influence exerted by the British people is due to their stable and enlightened government, free and democratic institutions, mechanical and inventive skill, success in war, shrewdness and integrity in trade, rapid increase in numbers, and colonizing power. British civilization prevails over one third of the habitable globe, and the English language is spoken by one person out of every ten in the world.

Government. — The government of the United Kingdom is a constitutional monarchy, the power of the king being fixed by the English constitution. The Parliament, composed of the House of Lords and the House of Commons, is the lawmaking body. The first corresponds in general to our Senate, and the second to our House of Representatives. The House of Lords is made up of nobles with inherited titles, and of the bishops and archbishops of the English Church, who receive their appointments from the king. In all it has 635 members. The House of Commons is composed of members elected by the people for a term of years, in all 670 members.

Colonial Government. — The colonies are governed by various methods, the object of which is to give the people of each colony as far as practicable the right to govern themselves. This far-sighted policy has done a great deal toward making the British colonies so successful. Canada, Cape Colony, Australia, and New Zealand are practically independent. The small colonies and India are ruled by officers appointed by the Prime Minister.

The British Colonies:

Mediterranean: Gibraltar and Malta.

Asia: India, Ceylon, Cyprus, Straits Settlements, Malay States, Borneo and Sarawak, Hongkong, Aden.

Australia and the *Pacific:* Australia, New Zealand, Tasmania, Fiji islands, Papua.

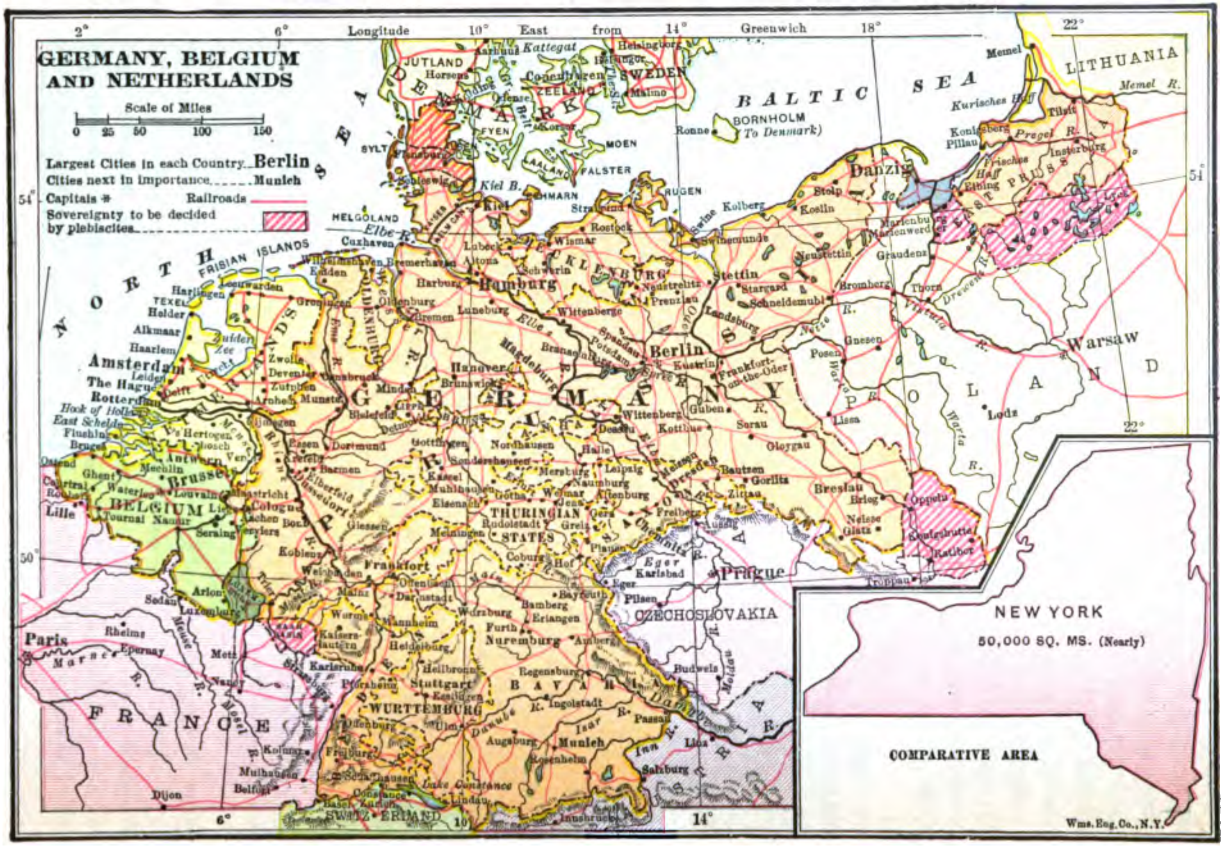
Africa: Ascension island, St. Helena island, West Africa, Nigeria, Gold Coast, Sierra Leone, Rhodesia, Nyassa land, Transvaal, Orange Free State, Natal, Basutoland, Cape of Good Hope, East Africa, Zanzibar, Somaliland, Mauritius.

America: Canada, Newfoundland and Labrador, British Honduras, British Guiana, Bermuda, Bahamas, Jamaica, Windward and Leeward islands, Trinidad, Tobago, and Barbadoes.

REVIEW QUESTIONS. — (1) Explain how the location of the United Kingdom affects its commerce. (2) What effect has the climate of the British Isles on their commercial development? (3) What use is made of England's agricultural resources? (4) Why has England become the leading banking and the leading carrying nation of the world? (5) List the chief harbors of the British Isles and show their importance. (6) Compare the fisheries of the United States with those of Great Britain. (7) Why does England have to buy $50 worth of food products for every inhabitant annually? (8) Why is England a great manufacturing nation? Why are the manufactures of Ireland of little importance? (9) By what lines do British exports to the United States reach New York City? (10) In 1909, $412,000,000 worth of fresh beef was sent from the United States to the United Kingdom. In 1913 only $12,000 was exported. How do you account for this dropping off? (11) Explain how Great Britain can have a balance of trade against her and still be prosperous. (12) Name and locate three of England's leading manufacturing industries. (13) Draw the most important ocean routes which connect the United Kingdom with its colonies. (14) Mention some great ocean liners built in British shipyards. (15) Discuss the transportation facilities of Great Britain. (16) Compare London with New York commercially. (17) What is meant by free trade? (18) How is England able to export tin, rubber, and diamonds to the United States? (19) What does the United Kingdom buy in the world's markets? What does she sell? (20) What part does the United States play in her trade? (21) Why does the United Kingdom maintain the world's largest navy? (22) It is said that a citizen has more personal liberty under the British government than under our own. How do you account for this?

Germany

Surface and Climate. — The area of this republic, all that is left to-day of the former German Empire, is a little larger than that of California, and has a population of about fifty-four millions. From one of the great powers, Germany has become a small debt-saddled



GERMANY, BELGIUM AND NETHERLANDS
Scale of Miles
0 25 50 100 150
Largest Cities in each Country Berlin
Cities next in importance Munich
Capitals
Railroads
Sovereignty to be decided by plebiscites
Longitude 10° East from 14° Greenwich 18° 22°
NORTH SEA
BALTIC SEA
FRISIAN ISLANDS
HELGOLAND
JUTLAND
DENMARK
SWEDEN
BORNHOLM (To Denmark)
LITHUANIA
GERMANY
BELGIUM
FRANCE
POLAND
CZECHOSLOVAKIA
AUSTRIA
THURINGIAN STATES
BAVARIA
WURTTEMBURG
SWITZERLAND
Amsterdam
Berlin
Hamburg
Danzig
Warsaw
Prague
Paris
Munich
Frankfort
Cologne
Brussels
NEW YORK
50,000 SQ. MS. (Nearly)
COMPARATIVE AREA
Wms. Eng. Co., N.Y.

Fig. 116.

state. It consists in the center and south of a high tableland, from which rise numerous mountain ranges; and in the north of a great plain extending from the central region to the Baltic. The southern part, on account of the elevation, is quite as cold as the north. The climate of southwestern Germany is mild; the eastern half is much colder and has less rain.

Resources and Industries. — Practically all the land is developed in some way or other and two fifths of the people are engaged in agriculture. Rye, oats, sugar beets, and potatoes are raised in the north; wheat, barley, hops, grapes, and tobacco in the south. The Rhine valley is a large wine-producing region. One fourth of Germany is devoted to growing timber such as oak, beech, spruce, and pine. The coal fields are very productive, and the country ranks second in the production of iron and steel. The lower Rhine region is the chief iron district. Lead, zinc, silver, and copper are also mined.

Before the Great War, Germany ranked high as a manufacturing nation. The silk center is at Crefeld, and the woolen center at Aachen. The production of medicines, electrical apparatus, optical glass, scientific instruments, and chemicals, especially coal tar dyes and perfumery, is important. The workmen are vigorous and industrious.

Transportation. — The railroad and canal systems are well managed. All the rivers are navigable nearly to their sources and all are of great commercial value. Among these are the Rhine, the Weser, the Elbe, and the Oder. Nine thousand miles of canals connect the river channels. Nearly 35,000 miles of government owned railways center at Berlin. The Baltic ports, Kiel, Stettin, and Danzig, are connected with the North sea by the Kiel ship canal.

Cities. — There are 23 German cities of over 200,000 inhabitants, the size of Rochester, N. Y., and seven of over 500,000, the size of Pittsburg. Berlin, with 2,000,000, is first in size and industrial activity. Hamburg is the second city of the republic, a seaport with extensive docks at the mouth of the Elbe. Bremen, on the Weser, is also a shipping center. Stettin and Königsberg are the chief ports on the Baltic. Leipzig is the center for books and printing. Dresden is an art center, and Chemnitz, in Saxony, is a manufacturing city. Munich, the third city of the country, is the capital of Bavaria, a railway center, and the headquarters of Bavarian trade.

Commerce. — Before she plunged the world into war in 1914, Germany was second only to the United Kingdom in the amount of her exports and imports, which totaled $4,000,000,000 a year. Her imports then amounted to nearly $500,000,000 more than her exports, as she was forced to buy about $65 worth of breadstuffs for every one of her inhabitants annually. She imported about $160,000,000 worth of cotton every year, the other large items being wool, raw silk, copper, iron ore, rubber, hides, coffee, and eggs. Germany then bought from the United States $350,000,000 worth of cotton, copper, wheat and

FIG. 117. The market place and town hall at Stuttgart, Germany.

other breadstuffs, lard, petroleum products, fruits, furs, and leather. The exports consisted mainly of manufactures. Silk, woolen, and cotton goods, machinery, glass, electrical materials, vehicles, and chemicals were the leading items. The United States had a larger trade with Germany than with any other nation except Great Britain, buying cotton goods, hides and skins, raw rubber, furs, dyes, toys, and gloves to the amount of $190,000,000. This enormous foreign trade was lost to the German people through the war, and it will not be recovered readily, if at all. The war taught this country to manufacture for itself many of the products it formerly imported from Germany.

The Great War. — In 1914, when Germany was at the height of its importance as a great manufacturing and industrial power, the trade rival of the United States and Great Britain, the Prussian military leaders plunged the country into war in order to establish German dominion first over Europe and then over the world. Twenty-four nations fought her into submission in a war lasting five years. As a result the German Empire collapsed, the marvelous trade system she had built up in fifty years was destroyed, 35 billions of dollars were spent by her in vain, and 1,600,000 German lives were lost.

Effects upon Neighboring Countries. — While the interior of Germany was untouched by the war and her industrial plants unharmed, the damages suffered by other countries were almost irreparable. In **Belgium,** the Germans systematically ruined the great steel industry of this country described in the following pages, in order to suppress its competition with German trade after the war. Two army brigades were employed in this work of destruction, one to dismount machinery in order to convey it to Germany and set it up there, the other simply to destroy with dynamite factory engines, blast furnaces, masonry platforms, etc. A destructive weapon called "the sheep," made of heavy steel, was hoisted above machinery marked by the German officers for destruction and then allowed to fall from a height, with the result that in one instant many delicate and intricate machines were smashed into fragments.

The damage done to the big plant at Ougrée-Marhaye, which formerly employed 9,000 men, is estimated at $40,000,000 in money values to-day. At Cockerill, where 11,000 men worked, the damage was $60,000,000. Without any military necessity, the machinery of the coal and iron mines was wrecked and the mines rendered useless for years by flooding. The industrial plants at Liége, Charleroi, and Mons were destroyed by gunfire and all the Belgian railroads were wrecked. The description of Belgium given later is one based upon pre-war conditions and conditions that the brave Belgian people will strive to revive as rapidly as possible.

The northeastern corner of **France,** the most productive of the whole country and one of the busiest in the world, was made a desert by the war. The Germans, with their eyes on future trade conditions, fought the war not only with soldiers but with their technical experts. Lille, Roubaix, and Turcoing were the French Manchester and Bradford. The bleachers, dyers, spinners, and weavers of cotton and wool here worked hand in hand. The coal mines of the Anzin and Lens districts fed this enormous industrial body; they supplied also the Sedan linen factories, the St. Gobain glass factories, the cotton and thread factories of St. Quentin and Lille, and the engineering works at Maubeuge, Douai, and Briey. In 1912, the total steam machinery of France amounted to 3,325,000 horse power. Of this, 1,250,000 horse power, one third of the total French steam power, was stolen or destroyed by the invading enemy without any military necessity. The Germans first shipped away all the existing stocks of raw materials and finished articles. They removed the leather beltings and fittings from the factories, wantonly destroying looms and spindles. German experts and industrial workers came after the armies and selected looms and other articles useful to their industries. These were packed and sent to Germany. What was left was smashed or sent to the foundry The destruction was absolute and scientific.

The mines also were destroyed without any military necessity, in the most savage way. Their output in 1913 was 28 million tons of coal; they meant daily bread to 110,000 laborers. All the superstructure that had been spared by shell fire was destroyed at the pitheads; the engines and elevators, the caldrons and the pumps are to-day a mass of ruins. Near Lens, the Germans turned a little river into the pits. Five years will be

required to bring these mines back to working condition. The money loss is almost incalculable. The value of the woolen, cotton, and flax spindles and looms destroyed was $365,000,000; the loss in electrical stations and lines of distribution, manufacturing plants, sugar refineries, breweries, and small machine shops amounted to $815,000,000; $540,000,000 was lost in coal mines destroyed and $1,500,000,000 will be required to restore iron mines, blast furnaces, and steel works.

In addition to this systematized destruction, the very land of this section of France has been ruined. The gravel, clay, the subsoil, and the loam have been mixed in such a way by explosions that the earth will not be fertile for years to come. This corner

FIG. 118. Hamburg, the most important harbor in Europe and the third largest in the world.

of France is an absolute desert; the live stock has been stolen or killed, the orchards leveled, the wells poisoned, and the churches brought to the ground. Over 1,200,000 people fled from the invaded district; over 5,000,000 suffered there in silence for five years. The defense of her land cost France 63 billion dollars, while 1,300,000 of her men fell in battle and as many more were maimed and crippled. Her young men are gone and the world must provide shelter for her orphans. The following pages describe the pre-war conditions of normal times and the conditions the indomitable French spirit will strive to restore.

Poland was stripped bare of every necessity by the retreating Germans and the people thrown upon the charity of the world. Every Serb was driven from his native

soil and Serbia ravaged. In these countries, because Poland could never compete with German trade and Serbia had no industrial development, there was no systematic industrial destruction carried on.

German Reparation. — By the terms of the treaty of peace, Germany was shorn of European territory equal in size to all the New England states, Maine excepted. Her colonial empire of 1,270,000 square miles was divided among Great Britain, Australia, and Japan. Germany surrendered to France Alsace-Lorraine, 5,600 square miles in area; to Belgium two districts surrounding Malmedy and Eupen, 382 square miles in area; to Poland, portions of Silesia, Posen, West and East Prussia, 27,688 square miles in area. Twenty-five million people dwelt in the territories she was forced to give up. She lost control over the Sarre basin, 738 square miles in area, the coal mines of which were given to France, and also the city of Dansig, 729 square miles in area. Many of these districts were among the richest in mineral resources and in population of all her domains. From an empire of 1,240,000 square miles, she was reduced to a state of 161,000 square miles in area.

Germany was forced to accept responsibility for all damages to the Allied governments and peoples. She must rebuild northern France and Belgium and restore the materials stolen from the invaded areas. The total sum to be paid in reparation is $25,000,000,000. She granted free Allied transit through her territories and must submit to Allied control of finance, business, and transportation until the last penny of her huge debt to the world is paid. During the war her submarines sank 12,800,000 tons of the merchant shipping of fifteen nations. Forced to pay this loss ton for ton, she gave up 5,000,000 tons of German shipping and she must now construct new ships in her yards for the Allies at the rate of 200,000 tons a year for five years. With all her yards working at maximum speed, it will take her over ten years to regain her pre-war position on the seas.

Stripped of her merchant marine and saddled with debt, Germany's trade prestige is gone. She must for many years remain a hostage of the world, a nation on probation.

REVIEW QUESTIONS. — (1) Why is 91 per cent of the land in Germany highly developed while great waste areas are found in the United States? (2) Why does the United States government offer western lands free to settlers? (3) In Germany no landowner may cut down a tree without special permission and without planting another. Why is this? (4) Compare Great Britain and Germany with respect to position and natural resources. (5) Discuss the transportation facilities of Germany. (6) By the peace treaty almost all her great rivers and the Kiel canal were internationalized. What does this mean? (7) Mention five articles the United States previously imported from Germany but which it now makes here. (8) What articles are we now making for the South American trade that were formerly supplied by Germany? (9) Tell why the sale of German goods will not be encouraged in France, Great Britain, and the United States after the war. (10) What neutral countries are likely to transport German goods after the war? (11) Name the colonies Germany lost through the war. (12) Name some German steamship lines the vessels of which were confiscated by the Allies.

CHAPTER XVIII

THE COUNTRIES OF NORTHERN EUROPE

France

Surface and Climate. — On an area of 212,000 square miles, only one third larger than California, one half of which is under cultivation, France supports a population of about 39 million which scarcely varies from year to year. One half of the population finds its occupation in agriculture, and one half of the people of the whole country are breadwinners. The compact form of the country, its natural boundaries, and greater extent of seacoast are in marked contrast with Germany. Its location gives it a milder climate, greater rainfall, and better advantages for commerce than Germany possesses. On three sides France faces the ocean. The North sea and the English channel give direct access to the northern countries. The Atlantic leads to the American continent, and the Mediterranean sea and the Suez canal afford the shortest route to the countries of southern Europe and the East. On each seaboard France has good harbors. Highlands and mountains mark its surface to the south and east, but it slopes off to the north and northwest, where it becomes quite level, forming a great fertile plain.

Resources and Industries. — Mild climate and good soil make agriculture a profitable industry. The French farms are generally small and worked by the owners. About one fourth of the land farmed is given to cereals and one eighth to wheat raising, so that France raises enough wheat for home use and is able to export about 30 million bushels. Oats, barley, and rye are grown also. All over the south the grape is raised for the manufacture of champagnes and red and white wines. The sugar beet is widely raised in the north and refined at Paris. Fruits, such as apples, pears, and olives, are raised in quantities that permit an abundant export.

Dairying is an active industry in the north and great quantities

of butter, milk, eggs, and cheese are shipped to England. Horses, mules, and sheep are raised. French codfishers work from the North sea as far west as Newfoundland. Sardines, canned in France, are sent all over the world. Nearly every port on the channel, on the Atlantic, and on the Mediterranean has a fishing trade.

Coal, iron, and lumber are produced in France in quantities too small to supply the country's need, and all three are imported. Nor-

FIG. 119. The harbor and docks at Havre, France.

way and Sweden send lumber. Important iron deposits are found near the Belgian border. Sixty per cent of the coal is mined in sections adjacent to the channel and to Belgium. England sends over about ten million tons of coal every year. Lille and Creuzot are the principal iron and steel centers.

The textile and clothing industries are most important. More than a million people are engaged in the cotton, woolen, and linen industries, and about $600,000,000 worth is made yearly. Lyons, the third French city in population, is the center of the world's silk industries. Most of the raw silk is obtained from Italy and China. The


FRANCE, SPAIN
AND
PORTUGAL
Scale of Miles
NEW YORK
50,000 SQ. MILES
(Nearly)
COMPARATIVE AREA
Largest City in each Country — Madrid
Cities next in importance — Havre
Williams Engraving Co., New York

FIG. 120.

making of kid gloves, ribbons, hats, perfumery, cut glass, and porcelain are industries in which the French excel by elegance of design and artistic finish. For such products Paris is famous.

Cities and Transportation. — Paris, the capital of France and third largest of the world's cities, is the first of the industrial and commercial centers of France, and is characterized not by one industry but by many. Fashionable clothing and articles of luxury belong to the industry and trade in a special manner. The literature, art, and financial interests of France are centered here. Marseilles is the greatest port on the Mediterranean; Bordeaux is the center of the foreign wine trade, Limoges of the china trade, and Nantes is the chief port on the Atlantic. Havre, at the mouth of the Seine, is the port of Paris and the second center of sea trade as well as the chief port for American trade. Atlantic liners call at Havre, Cherbourg, and Boulogne.

Practically all the railroads of France radiate from Paris, running to Lyons, Toulouse, Bordeaux, Nantes, Havre, Calais, and Dieppe, some crossing to Germany, Switzerland, and Italy. The chief rivers afford 5,500 miles of navigation and these, with 3,000 miles of canals and the railroads, form a complete network over the country. The public roads are kept in perfect condition.

Commercial Relations. — Over two thirds of the imports are raw materials and about 63 per cent of the exports are manufactured goods. Cotton cloth, silk, feathers, clothing and lingerie, laces, artificial flowers, jewelry, perfumery, precious stones, leather goods, art works, and wines form a large proportion of the $1,100,000,000 worth of goods sent abroad every year. To France the United States sends raw cotton, copper, tobacco, wheat, iron and steel manufactures, meat products, oils, and machinery. England is the best customer France has, and in turn France buys more from England than elsewhere. Next in importance to France as a customer comes Belgium, then Germany, while the United States is fourth. In supplying France with her materials for manufacture and food supplies, the United States is second only to England. We buy from France $137,000,000 worth of art works, silk goods, hides and skins, precious stones, chemicals, cotton laces, gloves, and china.

Government. — The laws of the French Republic are made by the National Assembly, which is composed of a Chamber of Deputies

of about 600 members, elected directly by the people, and a Senate of about 300 members, chosen by representatives of the people. The President is elected by the National Assembly.

Belgium

Belgium is virtually the smallest independent country in the world in point of size, and yet stands eighth in a list of the wealth of nations and sixth in the total of her export and import trade.

FIG. 121. The market place in Ghent, Belgium.

With an area of 11,000 square miles, only one fourth larger than Vermont, she supports seven and a half million in population. The surface slopes from a plateau region in the south and east to a low coastal plain. The mountains are rich in coal, iron, zinc, and stone; the plain is a manufacturing and agricultural region. The farms, small and cleverly cultivated, yield hay, flax, cereals, sugar beets, and hops.

The greatest natural wealth of Belgium is its deposits of coal and iron, and beds of excellent sand for the manufacture of glass. The coal beds are along the rivers Sambre and Meuse, and extend from the French border to the city of Liege. Iron ore is found in the coal regions, and pig iron and steel are manufactured at Liege, Seraing, Charleroi, and Mons. Machinery and cutlery are extensively made at Liege. Its arsenals for the production of rifles and cannon are the oldest in Europe.

Brussels is a home of general industry, lace making being the best known. Ghent is noted for cotton manufacture. Antwerp on the Scheldt is the great commercial city, more than 12,000 ships entering and clearing here every year. Of regular navigation lines, 110 engage in the Antwerp trade and nine of these steam to United States ports. Five thousand diamond cutters are employed in this city.

Belgium has but one colony, the Kongo Free State, from which she obtains rubber, ivory, and oil.

Transportation and Trade. — The state owns and operates the Belgium railways and does this with such skill and judgment that they are handled profitably at low rates of fare. They are connected with the trunk lines of France and Germany and their freight business is large. Numerous canals also aid in the movement of freight.

Wages in Belgium are slightly lower than in other countries, and as a result this country is able to manufacture at low cost and thus to offer strong competition in foreign markets.

The exports of Great Britain to Belgium are about seven times those of the United States, of France twelve times, and of Germany about fifteen times. Belgium sends us diamonds, glass, linen goods, and rubber, and in return we help to feed her people and supply her furnaces and factories with raw material. The country exports about $500,000,000 worth of products and buys $660,000,000 worth of raw material. To the United States she sells unset diamonds, raw rubber, hides, linens, and furs. She buys cotton, wheat, oils, meats, and iron and steel.

Government. — Belgium is a constitutional monarchy. It has a king, and a legislature composed of a senate and a house of representatives. The senators are chosen by the provinces and the representatives by the people. In Belgium a man may have more than one

vote according to age, wealth, or educational qualifications, but none may have more than three votes. The people consist mainly of two races: Flemings and Walloons. They maintain an excellent public school system, with universities at Ghent, Brussels, Liege, and Louvain.

The Netherlands

As regards commerce, Holland is a miniature England: it is essentially a country whose people exist upon their seagoing trade. The situation of the Netherlands on the border of the continent, its extensive coast line, and numerous islands have developed a nation of fishermen, sailors, and traders. The area exceeds that of Belgium, but the population is about two million less. The land is chiefly a low plain, continuous with the low plains of northern Belgium and western Germany. The climate is moderate, owing to the winds that blow steadily from the ocean for more than two thirds of the year, bringing almost daily showers.

Since it has little coal and iron, it lacks the basal materials of manufacture and is mainly commercial rather than industrial. Like all densely populated European lands, it imports much of its food; but agriculture, carried on on plains often reclaimed by dikes from marshes and from the sea itself, shows some important products. Butter, cheese, eggs, flowers, and vegetables are sent to England and other neighboring countries.

After agriculture, manufacturing is next in importance and consists in the making of cotton, woolen, and linen goods, chemicals, and sugar refining.

Her place in the world's trade results from (1) her favorable position and her water routes, despite her small natural resources; (2) the fact that she is able to handle her share of the trade in goods that are passing between the sea and Germany and other countries; (3) the fact that she holds important and rich colonies such as Java, Sumatra, Borneo, Celebes, and other parts of the East Indies, with which there is a vast trade. The chief exports of these colonies go to the Netherlands and are thence distributed to other lands, making up the greater part of Dutch foreign trade.

Rotterdam is the principal port of the Rhine and has more than

half the trade of the country. Amsterdam is one of the financial centers of Europe and an active manufacturing center. The means of internal communication are the most complete in the world. No other country has so many canals; these are used to drain the land and to transport freight barges. There are 10,000 miles of roads, 2,000 miles of canals, and 2,000 miles of railway.

Trade Relations. — A rather strange feature of the foreign trade of Holland is the fact that while iron and steel, textiles, grain, and flour form her principal exports, they also constitute her principal imports. That is to say, the nation is engaged in a general merchandising business like a huge grocery store, buying and selling as the need occurs or as markets indicate. She buys foodstuffs, manufactures, and raw materials, exporting dairy products, sugar, flowers, and flax. Great Britain, Germany, France, and Belgium take most of her exports. The trade with the United States is small, amounting to about $160,000,000 a year. She buys our copper, wheat, oils, flaxseed, corn, tobacco, and leather, selling us diamonds, tobacco, skins, and tin.

Government. — The government is a limited monarchy as in Belgium, but there are no more democratic people in the world than the Dutch. They guard their liberty with jealous care, and what the people want they have in all matters of legislation. They are self-governing and are competent in knowledge and temperament to handle that dangerous possession, liberty.

REVIEW QUESTIONS. — (1) What natural advantages of location has France over Germany? (2) Compare the climate of France with that of the United States. (3) Name the chief products of her farms, fisheries, vineyards, and mines. (4) What part does Paris play in her commercial life? (5) What does France buy from the United States? (6) What does she sell to us? (7) Outline the French government.

(8) How is Belgium able to sell us rubber and diamonds? (9) What are her chief industries? (10) Discuss Belgium's trade relations with the United States.

(11) Tell about the physical features of the Netherlands. Describe the dikes and the canals. State the main purpose of each. (12) Why is Holland compared to a huge grocery store? (13) To what conditions is her active trade due? (14) What steamship lines connect the United States with Holland? (15) What does the United States buy from her?

Norway and Sweden

Norway.—The broken shore of Norway, with its islands and fiords, favored the growth of a maritime people. Since it is a high and rocky

country, agriculture is limited to dairy products, poultry, vegetables, and hardy grains. The resources of the country are in its forests, fisheries, and shipping. Copper, lead, zinc, and iron are found, and the mining interests may increase.

The fisheries are worth about $12,000,000 a year, and over 15,000 vessels are engaged in the industry. The lumber output — spruce, fir, and pine — is worth twice as much as the fisheries. The Norwe-

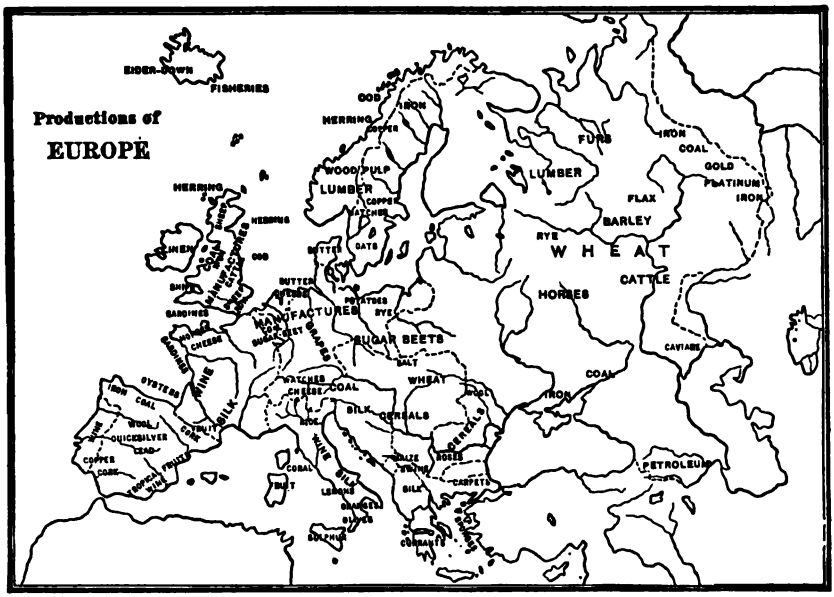


FIG. 122.

gians have a wonderful share in the world's carrying trade. Their fishermen, whalers, and merchant ships are found in all waters. There is little coal on the peninsula, so that manufacturing is unimportant, with the exception of the making of wood pulp and matches. The iron is of superior quality and is sold to all iron-manufacturing countries.

Russia and Germany combine to feed Norway, and she is forced to import twice as much as she sells. However, the proceeds of her shipping and of tourist traffic brings the money home again. Christiania and Bergen are the chief commercial and industrial cities. Pulp,

paper, lumber, and fish are the chief exports; textiles, machinery, iron and steel manufactures, and foodstuffs making up the imports.

Sweden. — While practically the entire surface of Norway is mountainous, that of Sweden is made up of a broad plateau which slopes eastward from the dividing ridge, and a long, low plain along the Baltic and the Skagerak.

Like that of the United Kingdom, the climate of Norway is mild for the latitude. The harbors are free from ice and open all the year round. The rainfall is heavy in the north, decreasing toward the south. Sweden, being on the eastern side of the mountain ridge, is cut off from the genial westerly winds and has a climate subject to extremes of temperature. The winters are long and severe, the ports and the mouths of the rivers, unlike those of Norway, being closed by ice for six months. The rainfall is less than half that of Norway. It is abundant on the western coast, but the eastern coast is quite dry. The country is two fifths larger than Norway and contains about as many people as New York City.

Most of the people of Sweden live in the southern lowland part of the country. Forests of fir, pine, and beech cover the rougher parts and constitute an important source of wealth. The coal supply is small and limited to the south. Barley, rye, and oats are the chief grains, potatoes are widely raised, and butter is exported to England.

Industries and Trade. — Manufactures of wood and iron furnish the largest industries, Sweden making more matches than any other country. Cotton and woolen goods are woven in mills and linen fabrics are made on home looms, but the country fails to supply its own needs and has to buy from abroad.

Stockholm is the largest city and the capital; Gothenburg is the second city. Both these have large industries in iron, cotton, and sugar. The natural waterways have been improved by canals and form a steamer route through the heart of the country.

The exports are iron ore and metal, timber, furniture, wood pulp, and matches. Sweden buys textiles, foodstuffs, machinery, steel and iron ware.

Government. — Norway and Sweden are limited monarchies. Both have legislatures chosen by the people, which have the sole power to vote taxes and, with the consent of the king, to make laws. In

Norway the legislature consists of one house only, while in Sweden there is both an upper and a lower house. The king is the chief executive, but must act through a body of ministers chosen by himself.

Denmark

This is a tiny, flat country, about as large as Maryland. The climate is moist and mild in summer, but cold in winter, as the country is exposed to the winds which blow over the icy waters of the Baltic sea. The lack of minerals and manufacturing resources drives the people to farming, fishing, dairying, and commerce. The dunes and peat bogs leave but scanty ground for farming. But even with these limitations the Danes have become the ablest farmers and stock raisers of the world. Oats, wheat, hay, and the sugar beet are the chief crops, and dairying is the chief occupation. Meat and eggs are large products, and horses are bred for export. Excellent butter, carefully made, is exported to neighboring countries.

Denmark's largest trade is with Germany and Great Britain. She buys foodstuffs, coal, lumber, textiles, hardware, and manufactured articles, selling the products of her farms and dairies to the amount of $150,000,000 a year.

Copenhagen, the capital and metropolis of Denmark, handles nearly all the commerce of the country. The colonies, Iceland, Greenland, and a few islands in the West Indies, are unimportant commercially.

Government. — The laws of Denmark are made by a National Congress, consisting of a Senate and House of Commons. The laws are executed by a council appointed by the king.

REVIEW QUESTIONS. — (1) What products does Norway have to offer to the United States? (2) Our important trade with Sweden amounts to $11,000,000 a year. What Swedish products do we buy? (3) Compare the location and surface of Denmark with those of Holland. (4) What are the natural resources and exports of Denmark? (5) Compare the governments of these three countries. (6) Select two leading cities of each country and show how their locations determine their importance. (7) Why is the Baltic sea not so important as the Mediterranean?

CHAPTER XIX

THE COUNTRIES OF SOUTHERN EUROPE

Italy

Surface and Climate. — This is a peninsula 600 miles long, holding a commanding position in the Mediterranean. It is twice as large as Florida, but smaller than the British Isles. The Apennine chain of mountains extends southeastward from the southern slope of the

FIG. 123. A glimpse of the harbor at Genoa, Italy.

Alps and the plain of the river Po. It is one of the most active earthquake regions in the world; the western side of the peninsula, including Sicily, is highly volcanic. The 4,000 miles of coast line make Italy resemble a gigantic pier thrust out into the sea. The mountain walls and warm winds give a genial climate in the north and one almost tropical in the south. The rainfall is heavier in the north; the sum-

mers are very dry in the south. Irrigation is used more than in any other European country.

Resources and Industries. — Agriculture is the prevailing industry; wheat, corn, and rice being raised in large amounts. Vegetables are also raised to help feed the population. The characteristic Italian products are grapes and wine, olives and olive oil, lemons and oranges, figs, nuts, and silk. Over $200,000,000 worth of wine is made. China and Japan alone surpass Italy in the amount of raw silk produced. Irrigation and the use of fertilizers show that a land can still produce after 2,000 years of crops. Cattle and horses are numerous, and poultry, eggs, and cheese are exported. Excellent hard wheat is grown in the southeast and is used for making macaroni. Italy is poor in minerals. Coal is imported from England and petroleum from the United States and Russia. Some lead, zinc, iron, and marble are produced. Sulphur is extensively mined in Sicily.

Manufactures are growing because of cheap labor and water power. Silk, cotton, woolen, and leather goods are made beyond the home demand. Like France, Italy excels in artistic handmade products, among which glass, lace, woodwork, marble sculpture, and paintings are famous.

Transportation, Cities, Commerce. — Railroad lines follow the east and west coasts to the end of the peninsula and cross the Apennines at many points from sea to sea. Italy communicates with nations of north-central Europe by a route between Genoa and Marseilles; by the Mont Cenis tunnel route from Turin to Paris; by the Simplon and St. Gothard tunnel routes from Genoa and Milan; and by passes across the eastern Alps into Austria. The government owns four fifths of the 10,000 miles of track. English and German lines handle the bulk of the passenger traffic from America to Naples and Genoa. Italian lines also run to the United States, Brazil, Argentina, and in the East to Egypt and Constantinople.

Genoa is the first Italian seaport. Leghorn, on the west coast, has an important foreign trade. Naples is the largest city, but is chiefly a place of call for passenger traffic. Palermo, Rome, and Florence are centers of varied trade. Milan and Turin are the great cities of the northern plain, and the former, in the center of rich lands and trade routes, is the most important commercial center of Italy.

Trieste is Italy's greatest seaport on the Adriatic. It has an extensive commerce east and west and with the valley of the Danube, amounting to over $400,000,000 a year. Steamship lines connect it with North and South America and the Far East. Italy buys a great deal more than she sells. Her total trade is over one billion dollars and a great part of this is with England and France. The principal imports of Italy tell the story of her home shortage, for they

FIG. 124. A cargo of lemons from Palermo, Sicily, consigned to American markets.

are wheat, coal, iron, copper, raw cotton, lumber, tobacco, oils, dried fish, and wool. Her principal exports are manufactures of cotton, silk, and wool, fruits and nuts, hemp, olives and olive oil, macaroni, rice, and marble. We buy her raw silk, lemons, macaroni, cheese, and nuts. The emigration of millions of Italians to the United States and Argentina stimulates Italian trade with these countries.

Government. — Italy has the constitutional form of government. The senate, or upper house of the parliament, is chosen by the king. The chamber of deputies, or lower house, is elected by the people according to districts and population. The king and his body of chosen ministers are the executive power.

Switzerland

This small state, filling a small space lying between four great powers, has been able to win and maintain its independence because mountain lands are not very attractive to invaders and are easily defended, while mountain life fosters a liberty-loving people. It is the most mountainous country in Europe and lies in the heart of the highest Alps, with an Alpine range in the south and the Jura mountains in the northwest. Most of the three million Swiss live on the hilly plateau between these ranges, occupying themselves in farming or in labor in the cities. The plateau is much superior to the mountains in soil, climate, and products. Large herds of cattle are kept for dairy purposes, and goats for their hides. The one acre in every nine that can be cultivated yields wheat and rye. Fruits are raised on the sunny slopes, and silkworms produce raw material for the mills.

Though scarcely twice the area of New Jersey, and with practically no coal and iron, Switzerland possesses wonderful industrial development. The country was made to do this by the lack of home-grown foodstuffs and the presence of abundant water power. Again it lies in the gateway of traffic between the populous centers of middle Europe and the productive Mediterranean region. In addition to these reasons the industry and intelligence of the people increase the natural wealth, as excellent markets for Swiss products are found in France and Germany, and even in the United States. Again, nature has given many scenic attractions to it, and these bring travelers from many nations and thus swell the national income.

The greater industries are in cotton, silk, and watch making. Embroidery may be called a typical Swiss industry, employing 6,000 power machines and 16,000 hand machines, while the United States has of both but 800 machines. Wood carving, straw plaiting, lace making, and other hand industries are carried on by the peasants in their homes during the winter. Water power is used, especially in electro-chemical works. Many of the people are engaged in caring for the millions of tourists and foreign visitors.

Cities, Transportation, and Commerce.—Geneva, the chief trade center, is noted for the manufacture of watches. Basel is the center of the silk industry, and Zurich contains great cotton and silk factories.

The railroads include many cogwheel and electric roads designed for sight-seers. Nearly all the lines are owned and managed by the state. Wonderful tunnels pierce the Alps and give direct railway connection with surrounding countries. Among them are the Mont Cenis, the St. Gothard, and the Simplon tunnels.

Switzerland buys cereals, meat, wine, and timber, as well as minerals, and pays for them largely with cotton, silk, and straw goods, machinery, watches, clocks, jewelry, and embroideries. She imports most of her raw cotton from the United States, sending us cotton laces,

FIG. 125. A view of Interlaken, Switzerland, in the Alps mountains.

embroideries, watches, silk goods, and cheese. The largest trade is with Germany, Great Britain, and France.

Government. — Each canton elects two members to a State Council and the people at large elect members to a National Council of 189 members. These two bodies form a national legislature called the Federal Assembly. The Federal Assembly chooses a President and a Federal Council of seven members, which is the executive body of the Republic. The President holds office for one year only, but the term of membership for the Federal Council varies.

REVIEW QUESTIONS. — (1) What natural features affect the commerce of Italy? (2) In what part are the cities most numerous and why? (3) What is the chief factor that determines the rainfall of Italy? (4) Why is Venice no longer commercially important? (5) Why was it once a leading commercial city? (6) Why do so many Italians come to the United States and to Argentina? (7) Locate the three important trade cities of the north. (8) Draw on an outline map the ocean trade routes from Italy to the United

States and from Italy to the East. (9) What does this country buy from the United States? What does she sell to us in exchange?

(10) What has been the effect of the physical features of Switzerland on her people and her industries? (11) Why is stock raising more important than agriculture? (12) Where does Switzerland find markets for her products? (13) The Swiss Federal Railroads maintain an information bureau in New York City. Why do you think they do this? (14) What are the trade relations of Switzerland with the United States? (15) Compare the government of Switzerland with that of Italy.

Spain

The Iberian peninsula is a compact body of land twice as large as Italy. Seven eighths of its boundary is seacoast and the remainder is formed by the unbroken wall of the Pyrenees. Three fourths of the peninsula is a plateau region about 2,500 feet in elevation. Mountains running nearly parallel with the coast shut off the rain so that this plateau is dry. The large lowland areas are in the valleys of the Guadalquivir, the Guadiana, and the Tagus in the southwest. The northwest part enjoys heavy rainfall, while the southeast region is hot and almost rainless. The Sierra Morena on the south and the Cantabrian Pyrenees on the north are covered with groves of chestnut and cork oak, while the interior is a treeless steppe.

Resources and Industries. — The central plateau of Spain does not lend itself to agriculture since it is lacking in rainfall and is cold in winter, hot in summer, and thinly peopled. Important lowlands are found between this plateau and the Pyrenees, as well as on the north and the south of the plateau. Here, by irrigation, wheat, oranges, onions to the value of $20,000,000 a year, nuts, olives, oats, barley, cotton, and sugar are raised. Outside the irrigated areas, methods of agriculture are extremely inefficient, land lying untilled or being cultivated in a careless manner. The people are generally poor and ignorant. Spain is the richest mineral region in Europe, producing lead, silver, copper, iron, and mercury. Large quantities of iron ore are sent to Wales to be smelted, and some is sent to the United States.

Manufactures. — Spain was once one of the busiest of manufacturing countries. Spanish cottons, woolens, linens, leather, and steel goods once supplied her colonial trade and half the markets of Europe. The industries of the country declined after the expulsion of the Moors.

Barcelona is now the chief manufacturing city. Its leading products are textile goods, paper, cork, and glass. Murcia and Valencia have extensive silk mills; fine glass and china ware, articles of gold and silver, and chocolate are made at Madrid and at several smaller cities. Iron and steel goods are manufactured mainly in the Basque provinces. There are numerous flour and oil mills, and factories for making tobacco and cigars give employment to 50,000 families. Leather goods are still made at Cordoba and cutlery at Toledo.

Cities, Commerce, and Transportation. — Barcelona is the chief Mediterranean seaport. Valencia is the center of the orange and onion trade. Ancient Cadiz is of declining importance. Cartagena and Malaga are the Mediterranean ports. Mineral industries are tributary to Almeria, a port of the southeast, and to Huelva, a port on the Atlantic. Madrid is the political, commercial, and railroad center of the peninsula.

In contrast to the advanced countries of Europe, Spain exports chiefly raw products and imports manufactures. Her foreign trade amounts to about $300,000,000 a year, half of which is imports and half exports. She sells wine, fruits, cork, nuts, iron ore, and copper ore, and buys coal, cotton, foodstuffs, and machinery. The high margins of the Spanish plateau offer obstructions to river navigation and to railway building. A French trunk line passes the west end of the Pyrenees to Madrid and Lisbon, and another follows the east coast to Gibraltar. The coast towns and the larger interior cities are connected by railroads. Though Spain is backward, her people are arousing themselves; industries are growing, education is improving, and since the resources are so rich, she is certain to take a more important place in European trade.

Government. — The government of Spain is a limited monarchy. The king is the executive and takes part in the making of the laws. The legislature is called the Cortes and is composed of a senate and a congress equal in authority. The senate, numbering 360, consists of three classes: first, those nominated by the crown; second, those elected by the church, the universities, and by various corporations; third, senators in their own right, among which are sons of the king, certain of the nobility, and various officers of state. The congress is composed of 383 deputies elected by the people.

Portugal

This country covers one seventh of the peninsula and contains about as many people as New York City. It owes its independence largely to certain natural features — deep river gorges — separating its territory from the interior plateau of Spain. Agriculture is the mainstay of the people. There seems to be, also, an industrial awakening which later on may be fruitful of results.

Lisbon, the capital, and Oporto are the main seaports. The largest trade is with Great Britain, Germany, France, and Brazil. From the United States she buys corn, cotton manufactures, petroleum, stoves, and wheat. The total trade is $100,000,000, and the imports are double the exports. She exports cork, wine, copper ore, timber, and fruits.

Government. — The government of Portugal is republican. The President and his ministers compose the executive branch. The legislative branch is a congress made up of delegates elected by the people.

Islands and Colonies. — Spain owns the Balearic group in the Mediterranean, rich in mineral resources and noted for manufacturing industries. The Canary group near the African coast produces tropical fruits and vegetables. The most important of Portugal's colonies are Angola and Portuguese East Africa. She owns also the Azores, and the Cape Verde and Madeira groups near the African coast. They produce minerals, forest products, and fruits.

Greece

This peninsula is largely mountainous and has little land suitable for farming. It is about the size of Tennessee, and its climate resembles that of lower California. The population is about that of New York City, and of this number one half are engaged in agriculture. Irrigation is necessary on the farms, the principal products of which are olives, wine, currants, and honey. Many sheep and goats are kept, and some iron ore is mined and exported. Greece does not produce food enough to feed her people, and large imports are made from Russia. Cloth, coal, and lumber are brought from Great Britain, Germany, and Austria. The United States takes her currants and ores.

Transportation and Cities. — The southern part of the peninsula is nearly severed from the northern by the gulf of Corinth, and the separation has been completed by a ship canal four miles long across the isthmus.

Athens, the capital, stands six miles from the sea and is connected by railway with its seaport, Piræus. These two cities contain many manufactories where furniture, pottery, cloth, shoes, and macaroni are made. The total foreign trade is about $50,000,000 a year, that with the United States amounting to about one twentieth of this.

FIG. 125a. Saloniki, a modern city of Greece, next to the capital in importance.

Greece, like Italy, feels the new impulse of modern life. In spite of emigration, the population has quadrupled in the past 75 years. Dry docks costing $1,000,000 have recently been constructed at Piræus, the port of Athens.

REVIEW QUESTIONS. — (1) What difficulties retard successful farming in Spain? (2) Discuss the mineral resources of this country. (3) How could Spain make her mines more profitable? (4) Give reasons for the fact that most of the trade between France and Spain is carried on by water. (5) Why are there so few important manufactures in Spain and Portugal? What effect has this condition upon the commercial interests of these countries? (6) What does Spain sell? What does she buy? (7) What can you say about the trade of Portugal? (8) Contrast the governments of Spain and of Portugal. (9) On an outline map draw the chief rivers of the Iberian peninsula. Locate also the chief ports.

(10) Why is Greece forced to import large quantities of foodstuffs? (11) What is the advantage of the Corinth ship canal? (12) Why is the United States constantly importing mineral ores from Greece, Spain, and Portugal? (13) Tell about the other trade relations of Greece with the United States. (14) There is a steamship line maintaining connections between Greece and the United States direct. Trace the route followed by the vessels of this line.

CHAPTER XX

THE COUNTRIES OF CENTRAL AND EASTERN EUROPE

Poland

The principle of self-determination constitutes the demand that a nation as a whole shall have the opportunity to make use of all its powers in the service of its national interests so that it may enforce its individuality in all directions, including the life of the state, of course within the limitations set by international law. This principle

Fig. 126. Sheep herders in Czechoslovakia.

is responsible for the birth of the new states of Poland, Czechoslovakia, Finland, and Jugo-Slavia among the countries of Europe.

Surface, Climate, Resources. — The Republic of Poland, a nation of about twenty millions, lies between Germany, Czechoslovakia, and Russia. While this state is landlocked, Danzig on the Baltic was declared a free city by the peace treaty so as to insure Poland access to the sea for her products and imports. The country is flat and rolling, a part of the great lowland plain. The summers are hot and the winters

long and cold. The westerlies contain sufficient moisture to produce a moderate rainfall. The Vistula is under ice for about eighty days of the average winter. The rolling nature of the country and the fairly rich soil make it suitable for farming and grazing. Coal and salt mines are found and petroleum springs abound along the Carpathians.

Industries, Cities, Commerce. — The chief industry is agriculture and much of it is carried on in the old-time way with simple tools. Distilleries, beet-sugar plants, and tobacco factories are numerous. Nearly 2,000 workmen are employed in the salt mines. Horse raising and swine breeding are important industries. The lot of the Polish peasant is a hard one; his food is simple, if not poor, and the whole family must work from sunrise to dusk. The women do equal work with the men, toiling even as railroad hands, painters, and common laborers.

Warsaw, on the Vistula, is the great commercial and industrial center. It manufactures machinery, carriages, and woven goods. A large export of leather and coal is sent to Russia through Warsaw. There are fifty book-printing establishments in the city. The Warsaw medical school and the school of art are famous. Cracow and Lemberg are cities situated in the midst of agricultural activities.

The people are industrious and intensely patriotic. One hundred and twenty years of stern suppression on the part of Germany and Russia has not sufficed to destroy their love of country and hope of freedom. The world will watch the future of this new republic with interest.

Czechoslovakia

Surface, Climate, Resources. — The Czechoslovak Republic is composed of the former Austro-Hungarian states of Bohemia, Moravia, part of Silesia, and Slovakia. Its boundaries were laid down in the treaty of peace. Though it is a landlocked state, the treaty states that Germany is to lease to Czechoslovakia, for ninety-nine years, spaces in Hamburg and Stettin to give her access to the sea. In addition, the Elbe, Oder, and Danube rivers, as well as the Kiel canal, are internationalized, which means that the vessels of all nations may use them without restrictions in carrying their goods to the sea. A

free Danube will connect the Czechoslovaks with the Jugo-Slavs and the Rumanians in the south.

The area of the new state is almost the same as that of New York state and its population is about 13,000,000. Located in a rich rolling plain, it is largely an agricultural country. The winters are cold and the summers hot. Owing to the fact that the region is generally dry in summer, droughts are frequent and crops sometimes fail. Coal and iron mines are numerous in Bohemia; the mineral resources of Slovakia await development by the new government.

FIG. 127. A salt mine in Poland. Here rock salt is found practically pure.

Cities, Commerce, Government. — All the manufacturing activity is found in the western part of the country, the eastern part being given over to agricultural and mining interests. The great farms produce corn, wheat, rye, oats, hops, and sugar beets. Coal and iron mining, and the leather, paper, furniture, and electro-technical industries are of importance. The glassware industry of Bohemia employs 50,000 workers. Manufactures of lace, ribbons, chemical products, and pottery are largely developed. For internal intercourse there are excellent highways extending to ten thousand miles in all, and several important lines of railways.

Prague, the capital, is as large as Pittsburg. It is situated at the head of navigation on the Elbe. This country imports cotton, cereals, tobacco, coffee, machinery, cloths, and paper. She sells sugar, wool, glass and metal wares, as well as coal, hops, and beer. We send her our inventions, such as typewriters, cash registers, sewing machines, as well as cotton, oils, and copper.

FIG. 127a. General view of the city of Prague.

Czechoslovakia has a democratic form of government and suffrage is universal, both men and women having the right to elect all officers in all departments of the government. A reform bill passed in the National Assembly in 1919 arranged to abolish the private ownership of the large estates, often thousands of acres in extent, and to turn these lands, after the owners are compensated, over to the people who work them. In this way about 17,000 square miles of territory will be converted into individual farms. There is a complete system of popular and secondary education, with about 500 primary and more than 600 secondary schools. Here the percentage of people who cannot read or write is the lowest in Europe. The Czechs are enthusiastic and enterprising and well able to govern themselves. The transfer of power from Austrian hands to those of the Czech authorities took place with quiet dignity and without any excesses. Relieved of the burden of Austrian taxation, the new state should prosper.

REVIEW QUESTIONS. — (1) Name the countries that surround Poland. (2) How do the surface and the climate of Poland and Czechoslovakia affect the commerce of these countries? (3) In what ways are these two countries alike? How do they differ? (4) Name the various conditions that indicate successful futures for these two countries. (5) Tell why direct access to the sea by means of a seacoast with ports is no longer so important a condition for a country's commercial development as in the past. (6) Compare the chief industries of Chicago, Prague, and Warsaw. (7) What are likely to be important exports of the United States to these countries? (8) What do you know about the past history of Poland? (9) Tell why our exports to these countries are likely to be much in excess of our imports from them. (10) By what different routes could a New York merchant send goods to Czechoslovakia and Poland? (11) From their varied industries, what different traits would you ascribe to the Czechs and the Slovaks?

Russia, the Restless

In the past the control of one people over another has been largely due to a greater spirit of aggressiveness or warlike tendency. In the future one nation will lead another through greater economic wealth and sturdiness of national character. The wonderful country of Russia has been like a sleeping giant, but now she is awakening. Her thousands of miles of territory and the character of her sturdy, peaceful, industrious people will make her the most powerful country of the future. Her 800 million acres of forest and her unbroken fields will supply the world's timber and wheat.

Surface and Climate. — Russia with her great dependencies — Siberia, Caucasia, and Turkestan — constitutes a splendid unit, embracing nearly one sixth of the land surface of the globe, and next to that of the British Empire the largest in the world. This great country is more compact than the British Empire. The colonies of the latter are spread all over the earth. They may throw off British control at any time, while Russia is a unit, with no colonies and no dividing barriers. Russia lies chiefly in the great northern plain, extending from the Baltic sea to the Pacific ocean and from the fortieth parallel to within 10° of the north pole. The area of European Russia is two million square miles and the population 125 million. The coast line is broken by four seas: the Caspian, which is landlocked; the Black and the Baltic, whose outlets are controlled by other nations; and the White, which is icebound eight months of the year.

The Russian plain is crossed by a low tableland extending in a northeasterly direction from the Carpathian mountains to the Valdai

hills and thence to the Ural mountains. This great plain continues into Asiatic Russia, extending through Siberia for several thousand miles to the Pacific, and from the Arctic ocean to Persia. North of the latitude of Petrograd the climate is too cold for cereals; the central regions are forest-covered; the southern part contains most of the productive lands. South of the latitude of Odessa the climate is semi-tropical.

Resources and Industries. — Farming is the chief Russian industry. Great quantities of wheat, rye, and corn are raised. Four

FIG. 128. The city of Moscow, Russia, in winter.

fifths of the world's supply of flax is grown here. Hemp, potatoes, sugar beets, and tobacco are produced. In southern Siberia hard wheat, oats, rye, and potatoes are among the great crops. In the irrigated regions east of the Caspian cotton is being grown in increasingly large quantities. This is shipped to the Russian mill cities. The idea of depending on the United States for cotton is not always pleasant to the great European nations. The fertile lowland regions of central and southern Russia devote one million acres to sugar beets, supplying all the home needs and exporting largely. Hemp and flax are grown extensively in the Baltic districts and in central Russia, Russia

leading all other lands in these crops. On the Russian steppes, similar to our western prairies, great herds of cattle, horses, and sheep are raised. This steppe region extends over a vast area in southern Siberia. Swine are raised in great numbers. The cold regions of the north are rich in fur-bearing animals, as the sable, the wolf, the squirrel, and the beaver.

North of the farming region in Siberia stretch extensive and unbroken forests. The government is profiting by the mistake of the United States in permitting unregulated timber cutting, and limitations are already placed upon tree felling.

Coal and iron are found in abundance, which means that Russia will some day be a great manufacturing nation. The coal fields are found around Moscow, Kharkof, and along the lower Don river. Only railroads are needed now to bring coal to the iron mines and replace wood in smelting the ore. In the Urals gold, silver, copper, platinum, and graphite are mined. Russia ranks fourth among the gold-producing countries. Petroleum is found in rich deposits near the Caspian sea, Russia being second only to the United States in oil production. All these items of location and resources show us how very much Russia in the old world resembles Canada in the new.

Manufactures. — The iron industry is largest in the central and southern districts. Cotton is manufactured in Poland and around Moscow and Petrograd, and linen, hemp, and wool in many cities. These manufactures have developed to such an extent that the state is becoming an exporter rather than an importer of such goods. The tanning of leather is another industry, while flour milling and sugar refining give employment to a great number.

In the past Russia was very backward in manufacture. To-day billions of tons of coal and iron ore await the pick and shovel and the blast furnace. A stable government, however, is necessary for the development of manufacturing.

Cities and Transportation. — Moscow is the Paris of Russia. Besides being a great industrial center, it is also a great commercial center, and from it radiate railroads, rivers, and canals, which are needed to take care of its trade.

Petrograd, the largest city in Russia, is second only to Moscow in industries. It has a large foreign trade and is the financial center of

the nation. Odessa is the great grain market and the principal Black sea port. At Nijni Novgorod, east of Moscow, is held the greatest of Russian fairs, formerly the principal means of carrying on the interior trade of the empire, and even yet doing business to the extent of many millions of dollars every year. Vladivostok, the Pacific outlet and terminus of the Siberian railway, has direct trade connections with New York by a line of steamers running through the Panama canal.

FIG. 129. A 12,000-ton freighter of the Russian-American line, running between Libau, Russia, and New York. She is unloading oil, scrap rubber, sheep and goat skins.

In the central region the large rivers rise, the Volga, the Don and the Dnieper, the Duna and the Dwina. Astrakhan is at the mouth of the Don on the sea of Azov. Odessa is near the Dnieper's mouth. Riga is the port of the Duna, and Archangel of the Dwina. The exports leave largely through these cities. These rivers afford a cheap means of transportation, providing as they do for over 16,000 miles of water for steamers, 8,000 more for small sailing vessels, and 26,000 miles for rafts. The one drawback to the water transportation is the long winter and consequent ice.

The main railroad lines run from Moscow to Riga, to Petrograd, to Archangel, to Siberia and the Pacific coast, to Black sea ports, and

to Poland, Germany, and western Europe. Almost 50,000 miles of track are owned by the state. Petrograd is the western terminus of the Siberian railway, extending 5,000 miles across Eurasia to the Pacific coast. This railway is a competitor of the American railways and of the Suez and Panama canals for trade between the orient and western Europe.

Commerce. — The foreign trade amounts to $1,000,000,000 a year. This is still small, but Russia is only awakening. The internal trade is vast and no other nation of Europe has resources that make it so nearly self-supporting as Russia. She buys tea, coffee, wine, rubber, coal, cotton, chemicals, and machinery. She sells breadstuffs, petroleum, flax, hemp, and hides.

The most important trade is with Germany, Great Britain, and the United States. The latter country buys from Russia about $27,000,000 worth of goods, chiefly hides and skins, raw wool, licorice, scrap rubber, and furs. In return we send about $25,000,000 worth of cotton, copper, agricultural machinery, leather, and general machinery, such as typewriters, telephones, and automobiles.

Government. — Each village is self-governing, all the men meeting together in the open air to discuss public affairs. They elect an elder, or headman, to direct the business of the village, and a tax collector. The peasant population is still very ignorant, less than one fourth being able to read and write.

Old Russia under the czar was unified only by force — it was not a state; it was a world of varied climates and many different peoples and aspirations. The young Russia's titanic struggles to bring forth a democratic, organized government must be borne patiently by the nations of the earth. Her hope lies in her people, great, generous, and democratic at heart.

REVIEW QUESTIONS. — (1) Why is Russia called "the restless"? (2) What reasons have you for predicting a great future for this country? (3) Compare Russia to-day with the British Empire in as many ways as you can. (4) How do the surface features and the climate affect the Russian industries and products? (5) In what way does Russia resemble Canada? (6) What great mistake has been made by the United States government in regard to tree cutting? (7) How is this error being avoided by European countries? (8) On an outline map indicate the Russian rivers affording transportation facilities. (9) Why did Russia build the Siberian railway? (10) Mention and locate five great Russian cities, telling why each is important. (11) Where does Russia find markets for her products? (12) What trade relations exist between the

United States and Russia? (13) How does Russia rank in the production of wheat? Through what port does the Russian wheat pass to the East? (14) Why should the United States buy $20,000,000 worth of hides and skins from Russia every year?

Finland

This republic has an area of 145,600 square miles, largely lake and island. It is situated between the gulfs of Finland and Bothnia and included between 60° and 70° north latitude. Constantly fought over by Sweden and Russia, it became a semi-independent Grand Duchy of the latter in 1809. In 1917, the Finnish Diet declared Finland an independent republic. It has only about 3,000,000 people, but they are well-educated, industrious, and energetic. The country has much swamp and forest land in which wild animals abound. The people are engaged in developing the products of the forests such as lumber, resin, pitch, and tar. Cattle are raised in the open stretches.

Helsingfors, on the Gulf of Finland, is the capital and chief port. The republic buys wines, machinery, and manufactured goods to the value of $112,000,000 a year. It exports dairy products, naval stores, and lumber to the value of $50,000,000. The trade with the United States is unimportant but it is likely to increase.

Austria

This little landlocked mountain republic, about the size of New York state and with a population of seven millions, is all that remains to-day of the former Austro-Hungarian empire. She is now only one of eight new nations formed as a result of the war. Shorn of her littoral[1] and merchant shipping and pressed by war debts, she is of very little commercial importance.

The surface is mountainous and the climate varies as in the Swiss Alps. In the plains to the north food crops, sugar beets, flax, and hops are raised. The fruit and flower industry is being developed. Coal and iron are found. The location of Vienna, the capital, makes it still one of the great railway centers. It has trunk line connections with Paris, Berlin, Petrograd, and Constantinople. Ports on the Baltic and the North sea are also reached by railway. Transit privileges give Austria access to the Adriatic. The capital on the Danube

[1] Littoral = seacoast.


SOUTH CENTRAL EUROPE
Scale of Miles
0 50 100 200 300
Largest Cities in each Country Athens
Cities next in importance Budapest
Capitals
Railroads
Plebiscites to determine sovereignty
Longitude East from Greenwich
10°
15°
20°
25°
30°
50°
45°
40°
35°
Warsaw
Dresden
Prague
Vienna
Budapest
HUNGARY
RUMANIA
Bucharest
Belgrade
Sofia
BULGARIA
Skutari
Constantinople
Saloniki
Athens
TURKEY
BLACK SEA
TYRRHENIAN SEA
IONIAN SEA
AEGEAN SEA
MEDITERRANEAN SEA
Danube
CRETE
C.Matapan
C.Malla
C.Spartivento
Mt.Vesuvius
Gulf of Taranto
Brindisi
Corfu
CORFU
CEPHALONIA
ZANTE
STROMBOLI
LIPARI IS.
GOZZO
MALTA
Valetta
CERIGO
SANTORINI
MILO
NAXOS
SAMOS
CHIOS
MITYLENE
SKYROS
LEMNOS
IMBROS
EUBOEA
RHODES
Smyrna
Sparta
Argos
Patras
Corinth
Piraeus
Catania
Messina
Palermo
Naples
Rome
Cetinje
Sarajevo
Lemberg
Tarnopol
Czernowitz
Jassy
Galatz
Braila
Varna
Burghas
Adrianople
Philippopolis
Monastir
Durazzo
Temesvar
Arad
Debreczin
Szegedin
Fiume
Trieste
Venice
Pola
Ravenna
Munich
Danube
SWITZERLAND
UKRAINE
POLAND
CZECHOSLOVAKIA
TRANSYLVANIAN ALPS
NEW YORK
50,000 SQ. MILES
(NEARLY)
COMPARATIVE AREA
Wms.Eng.Co.,N.Y.

Fig. 130.

is the trade and manufacturing center, producing bronze, furniture, and fancy goods. The republic buys foodstuffs, cotton, machinery, cloth, and paper.

Vienna formerly vied with Paris in style and gayety. The Austrian aristocrats lived here in luxury on the receipts from their great estates in Hungary and Bohemia. Of the burden of Austrian taxation, 62% was borne by the Czech countries. With the estates returned to the people, the nobles are now compelled to earn their own living.

Hungary

This new state, the home of the Magyar nation, is another small landlocked republic about the same size as Austria—a result of the war. It is surrounded by Czechoslovakia, Austria, Jugo-Slavia, and Rumania. The republic, situated on the fertile, treeless plain of Hungary, has a continental climate with hot summers and cold winters. The rainfall is light. In spring the plain is covered with tall grasses and flowers; it becomes hot and dried up in summer, and is swept by cold winds in winter.

Hungary is distinctly a pastoral country and everyone is engaged in either farming or grazing. Practically all the land is under cultivation. Horses, sheep, and swine are raised for export. Wheat, rye, oats, barley, and sugar beets are grown. The Danube and the Theiss traverse the country and the right of free transit for imports and exports is secured to the republic. Budapest is the capital and trade center. It has large flour mills and is well placed with regard to wheat fields and markets. Hungary buys raw cotton, oils, and machinery. The people are friendly and hospitable, industrious and strong.

The Balkan Countries

The Balkan peninsula is the most eastern of the great peninsulas of southern Europe. No other equal area of 185,000 square miles in Europe presents equal variety of contour, surface, and natural resources, and in consequence such diversity of persons and occupation among its inhabitants. It is marked by a variety of climates, an irregular coastline, and two mountain systems separated by a rough plateau. These conditions fostered the growth of individual com-

munities. The Balkans contain beds of coal, iron, lead, and copper. Little has been done to develop them because in every age the peninsula has been a wild mixture of races, peoples, languages, religions, and great ambitions, producing a never ending turmoil. Here are included the Jugo-Slavs, Turks, Albanians, Greeks, Bulgarians, Serbs, and Montenegrins.

Rumania. — This kingdom, about twice the size of New York state, extends from the Danube to the Dniester, and from the Black sea to the Republic of Hungary. The area was doubled as a result of the Great War. Agriculture engages most of the population, wheat, corn, sugar beets, and flax being the leading crops. Coal and petroleum are produced in large quantities and salt mining and lumbering are important industries. There is considerable manufacturing in paper making, sugar refining, and textiles. Bucharest is the capital and chief industrial center, manufacturing clothing, flour, leather goods, and tobacco. A large part of Rumania's grain export goes to Belgium, Austria, and Germany. The United States trade is unimportant.

Rumania is a constitutional monarchy, with a king, and a parliament made up of a senate and a chamber of deputies. The country's commercial future depends upon the free use of the Dardanelles. The cheap waterway is an absolute necessity for her bulky products — corn, petroleum, and lumber. The internationalization of Turkey's old territory assures her a great future.

Jugo-Slavia. — To unite all the Jugo-Slavs, or Southern Slavs, has long been the aspiration of leaders among the Croats, Slavonians, and Serbs. This plan includes the union of the Croats, Slavonians, Dalmatians, Bosnians, Helvats, Montenegrins, and Serbs into one state. The peoples are racially one and they are confronted everywhere by foreigners.

Jugo-Slavia comprises a stretch from the Austrian republic down to the Greek border, and from the Adriatic to the borders of Hungary, Rumania, and Bulgaria. The section along the Adriatic has a dry summer and a rainy autumn and winter. Upon the plateau, the climate is cold in winter and very warm in summer. Farming and herding are the chief industries. Almost every peasant owns a small farm and the land is well tilled. Corn, hay, tobacco, and wheat are the leading products. Hemp, flax, and increasing amounts of silk are important

products also. At present flour is the only manufacture. Among the minerals obtained are copper, lead, zinc, gold, and silver. Oak, beech, and walnut trees abound in the forests. Animal products, sardines, prunes, honey, and wax are exported. Salt, oils, and manufactured goods are imported from Great Britain and Russia.

Belgrade on the Danube is the chief intermediate point between Constantinople and central Europe. It manufactures carpets, saddles, and harness.

Fiume is the great shipping center of this country and it serves also as a trade outlet for the countries to the north. Jugo-Slavia is a constitutional monarchy.

Bulgaria. — The northern section of this country has a climate of extremes like Rumania and is devoted to grain growing and grazing. Wheat and wool are the leading products. The southern section has a mild and moist climate and raises rice, grapes, tobacco, silk, and cotton. Coal is found and iron is abundant in many places. Salt and building stone are extensively quarried. The chief manufactures are textiles, cord and cigarettes.

The capital, Sofia, is on the main line of railway from Constantinople to central Europe and has a large trade. Rustchuk, Burgas, and Philippolis are the chief towns. On account of the excellent facilities for transportation afforded by the Danube and the canals of central Europe, Bulgaria finds a market for her goods among her near neighbors. Her oversea trade is carried on from the Black sea ports largely by the ships of Great Britain.

REVIEW QUESTIONS. — (1) Name two great disadvantages the Finns must work under in developing their republic. (2) Trace the course of a steamer from Liverpool to Helsingfors. (3) Why is the United States trade with Finland unimportant? (4) Show the importance of the Danube to the countries of central Europe. (5) In what ways do Austria and Hungary differ? (6) Tell why neither republic is of great commercial importance. (7) Compare the chief industry of St. Paul with that of Budapest. (8) What will these two countries buy from the United States? (9) How do the surface features and the climate of the Balkan countries affect their industries? (10) Why are Trieste and Fiume cities of commercial importance? (11) Explain the importance of the location of Belgrade, Bucharest, Salonica, and Constantinople. (12) Describe the industries and products of Rumania, the resources of Jugo-Slavia, and the exports of Bulgaria. (13) Why are the trade relations of the United States with the lower Balkan countries of little account? (14) With what European countries are their trade relations of most importance?

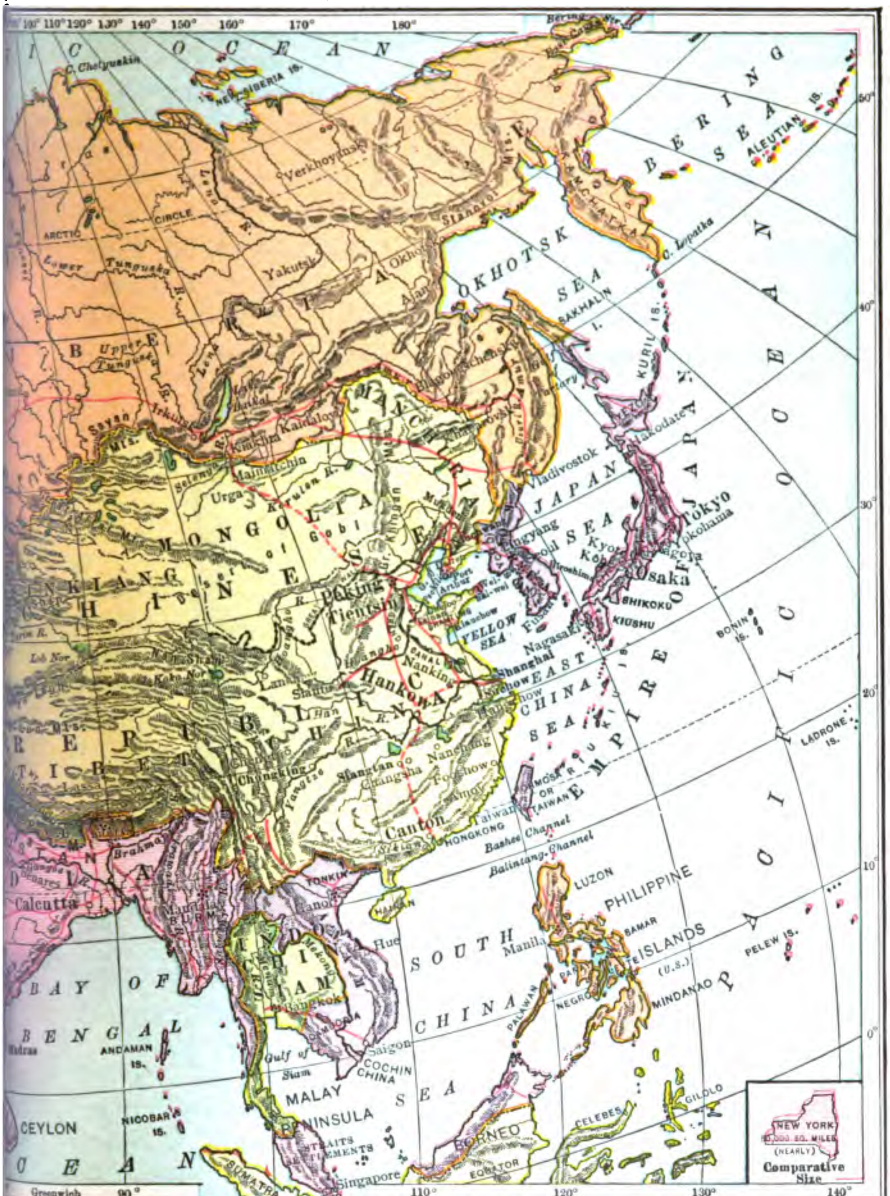
CHAPTER XXI

THE COMMERCE OF ASIATIC COUNTRIES

Surface and Climate. — Commercially Asia differs from Europe in that here the productive areas are on the edge of the continent, while Europe's central lowland is the great area of production. Asia has a central highland of plateaus and mountains, and its great rivers flow outward to the Arctic, Pacific, and Indian oceans. It has five times the area of Europe and contains more than twice as many people. Yet its commercial life is in the future; its foreign trade is much less than that of the United Kingdom, which in area is smaller than Japan. There is but one mile of coast line to every 370 square miles of area, which is less than one half the amount of coast line enjoyed by North America and by Europe. Again, the form of Europe gives it commercial unity. Its longest railroads cross its central parts, and many of its greatest ships anchor almost at the heart of the continent. In Asia the high central areas are mainly unproductive, and trails and caravans form the only means of communication. The continent contains more than half the population of the globe.

The vast extent of Asia and the number and direction of its mountain ranges give great variety to the climate. The interior of the continent has extremes of heat and cold, and great dryness. In the winter, strong, cold winds blow outward from these regions in every direction. During this season there is little rain in any part except on the coast lands of the extreme south. In the summer the interior becomes highly heated and the winds are drawn inward from the oceans; but even at this season only a small amount of rain falls, the greater part of the moisture having already been wrung from the winds while ascending the mountains. The northern plain is also a region of extremes of temperature. Here there is scarcely any rain, but farther south the amount increases considerably. The heaviest rainfall occurs where the winds strike the countries on the southern boundary. Southern and southeastern Asia lie within the region of the monsoons,


ASIA
Scale of Miles
0 200 400 600 800 1000
Largest Cities ..... Calcutta
Cities next in importance ..... Shanghai
Capitals
Railways open
Railways projected
ASIA MINOR
Scale of Miles
0 100 200 300
TURKEY
ARMENIA
ARABIA
PERSIA
RUSSIA
INDIA
ARABIAN SEA
BLACK SEA
CASPIAN SEA
MEDITERRANEAN SEA
RED SEA
Gulf of Aden
Gulf of Oman
Persian Gulf
Williams Engraving Co., N.Y.
Longitude
East
from



O C E A N
C. Chelyuskin
NEW SIBERIA IS.
Verkhoyansk
ARCTIC
CIRCLE
Lower
Tunguska
Yakutsk
Okhotsk
OKHOTSK
SEA
SAKHALIN
KURIL IS.
B E R I N G
S E A
ALEUTIAN
IS.
KAMCHATKA
C. Lopatka
Upper
Tunguska
Irkutsk
Sayan
Mts.
Urga
M O N G O L I A
Desert of Gobi
Vladivostok
Hakodate
J A P A N
SEA
Tokyo
Yokohama
Osaka
SHIKOKU
KIUSHU
Nagasaki
YELLOW
SEA
Peking
Tientsin
Shanghai
Nanking
Hankow
Canton
Chungking
Changsha
Foochow
Amoy
FORMOSA
OR
TAIWAN
HONGKONG
Bashee Channel
Balintang Channel
LUZON
PHILIPPINE
ISLANDS
(U.S.)
SAMAR
MINDANAO
NEGROS
PALAWAN
Manila
BONIN
IS.
LADRONE
IS.
PELEW IS.
E M P I R E
EAST
CHINA
SEA
SOUTH
CHINA
SEA
HAINAN
TONKIN
Hanoi
Hue
Saigon
COCHIN
CHINA
Gulf of
Siam
MALAY
PENINSULA
STRAITS
SETTLEMENTS
Singapore
SUMATRA
BORNEO
CELEBES
GILOLO
EQUATOR
Calcutta
Benares
B A Y   O F
B E N G A L
Madras
ANDAMAN
IS.
NICOBAR
IS.
CEYLON
O C E A N
P A C I F I C   O C E A N
Greenwich
90°
110°
120°
130°
140°
NEW YORK
50,000 SQ. MILES
(NEARLY)
Comparative
Size

or seasonal winds, which in summer blow in a northeasterly direction across the Indian and Pacific oceans, while in winter they blow outward from the land in a southwesterly direction.

Japan

This island empire consists of a chain of four large islands, with hundreds of smaller ones, extending from Kamchatka to Formosa. It now includes also the southern half of Sakalin and the peninsula of

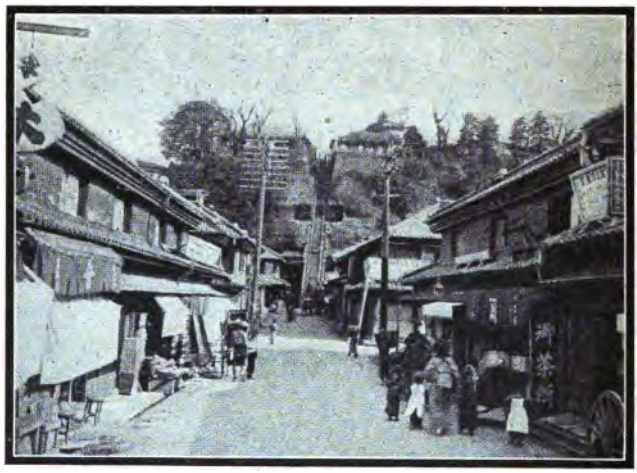


FIG. 132. A business street in Yokohama, Japan.

Korea. The area is about that of the state of Texas, while the population is over seventy-seven millions. Three fourths of the land is mountainous and heavily forested, and less than 20 per cent is under cultivation. The islands are exposed to the southeast monsoons in summer and to northwest winds from the continent in winter. April to September is the wet season, November to January the dry.

Resources and Industries. — The farms in Japan are so small that they are practically gardens, and domestic animals are few. Rice, wheat, barley, millet, and beans are the staple food crops. Familiar American and European trees, such as the pine, elm, chestnut, oak, and maple, are found. In silk production Japan is second only to

China, and Japan and Formosa teas are of superior quality. About three million people live by fishing, and whale meat is more common than beef or mutton. Coal, iron, and copper are the chief minerals. Formosa produces more than one half the world's supply of camphor.

The Japanese are expert in handicraft. Their art products include wares in paper, matting, silk, porcelain, enamel, gold, silver, bronze, and steel. Ironworks and shipyards are maintained by the government. Cotton, silk, and woolen mills using coal and water power employ several million people. Japan readily introduces the machinery of western nations, so that the industries are rapidly developing.

Cities and Transportation. — Yokohama is the chief port for American trade. Nagasaki, on the south island, and Kobe handle the Asiatic trade. The Japanese have the ambition and the natural facilities to carry on most of the shipping trade of the north Pacific. Tokyo, with one million people, is an important commercial port. Hakodate has a growing trade in coal and fish, and Osaka and Kyoto are centers of textile manufactures.

Since most of the cities and productive valleys are within easy reach of the sea, about 5,000 miles of railway afford the necessary transportation facilities of the empire.

Commerce. — Until 50 years ago, Japan was closed to foreign commerce. Its people, however, have shown themselves diligent, skillful, and courageous, and have quickly brought their country to the rank of the great powers. The largest trade is with the United Kingdom, China, India, and the United States. The United States buys about one third of the exports, principally raw silk, tea, hat materials, silk goods, and copper. Three great steamship lines, the Nippon Yusen, the Osaka Shosen, and the Toyo Kisen, connect Japan with London, Seattle, San Francisco, Australia, and China. Direct connection between New York and Japan through the Panama canal has been arranged for.

Japan sells silk, cotton yarn, tea, coal, copper, and manufactured wares. She buys raw cotton, machinery, wheat, wool, flax, hemp, sugar, and petroleum. We sell her chiefly raw cotton, kerosene, and considerable quantities of locomotives, machinery, building material, automobiles, and wheat.

Government. — Japan is a constitutional monarchy like Great

Britain and Italy. There is a legislature called the parliament, composed of a house of peers of 360 members and a house of representatives of 380 members. The members of the upper house are selected from the nobility, but other members, distinguished in civil or military life, may be added by the mikado. Members of the lower house are elected by those who are qualified by age and property to vote. The administration of the government is carried on by a cabinet of ministers appointed by the mikado.

China

Like Russia, China is a country whose great day is yet to come. The Chinese Republic extends from the latitude of Labrador to that of Cuba and has as great a variety of climate. It is one third larger than the United States. More than one fourth of the human race live within its borders, which include China proper, Mongolia, Manchuria, Eastern Turkestan, and Tibet. The greater part of the republic consists of mountains and plateaus. A low plain stretches along the east coast, between the Hoangho and Yangtze deltas. Lofty ranges extend along the west and south. Between these and bounded on the east by the Khinghan and other ranges is a vast interior plateau, generally too dry for cultivation. The basin of the Hoangho, about half the size of the Mississippi basin, is the most important part of northern China. The climate resembles that of the United States in its temperate character and the amount of rainfall. The interior has very cold winters and very hot summers.

Resources and Industries. — The highlands bordering the Chinese plain contain very extensive beds of anthracite and soft coal which have hardly been touched. In fact the coal fields offer a larger total of fuel than those of the United States. The plateau contains coal, copper, silver, lead, and tin, all of which are mined to some extent. Manchuria is a region of open forest, prairie, and steppe, resembling Manitoba and adapted to wheat growing and grazing. The forests of the Chinese plateau and mountains have all been cut down. Bamboo is used in place of timber. In the plain and plateau valleys, agriculture is extensively carried on, even the slopes being terraced and cultivated to a great height. Irrigation is widely practiced, and the warmth

and rainfall of summer enable two crops a year to be harvested. Rice is the most general crop, and the climate is suitable for tea and cotton growing. China produces about 40 per cent of the world's raw silk.

The manufactures include cotton and silk fabrics, straw matting, and porcelain and china. Recently a few factories under foreign

FIG. 133. The busy harbor of Hongkong, China.

management have been established for reeling silk and spinning cotton. Otherwise the manufactures are all home industries.

Transportation, Cities, and Commerce. — The people are sturdy and industrious. With the country's rich resources these conditions offer high possibilities for Chinese commerce, since a numerous people and a rich country must in time produce much and require much.

The internal commerce is checked by lack of roads. The coasting trade is much larger than the foreign commerce, which at present is about equal only to that of Switzerland. Permission to carry on trade and to build railways has gradually been gained by western governments, and this vast land is slowly opening to the world. Since the roads are very poor, transportation is mostly by porterage, wheelbarrows, pack animals, and bullock carts. Wheelbarrows require a passable track for only one wheel; they are propelled by hand, sometimes with a donkey or a sail to assist. The great rivers, supplemented by canals, are the arteries of commerce. The Yangtze is navigable by freighters for 680 miles, for river steamers 1,000 miles, and for small craft 500 miles farther. Railroads, however, are much needed, but as yet only 5,000 miles are open and people of one province often starve while there is abundance in another, because food cannot be got to them.

FIG. 134. The new Light of the East — a lamp sold in China for seven cents to promote the sale of American oil.

Shanghai, about as large as Boston, is the greatest Chinese seaport, handling one third of the foreign trade. Pekin, the capital, with its seaport, Tientsin, has a considerable foreign trade. Canton is the largest city, but its importance as a port is shared with the neighboring city of Hongkong, which is one of the greatest seaports of the world, handling with the city of Victoria as much trade as Liverpool. Great Britain owns this port. There are many interior river cities of great size, like Hankow and Chungking, which are trade centers.

The foreign commerce amounts to $500,000,000 annually. China sells silk, beans, and tea, buying cotton goods, sugar, rice, petroleum, and metals. The United States buys one fifth of the Chinese tea crop, and raw silk, wool, hides, and nut oil, though most of the foreign trade is with Japan and Great Britain. She takes out cotton cloths, kerosene, machinery, and hardware.

Government. — While the government of China is nominally a

republic, investigators find that only about 5 per cent of the people were interested in the recent revolution which was supposed to overthrow the emperor. They find that people only 20 miles outside of Pekin have no idea of the so-called change in government and still believe that an emperor rules them.

REVIEW QUESTIONS. — (1) Compare the surface features of Asia with those of Europe. (2) How does the Asiatic climate compare with that of North America? (3) Describe the location and extent of the Japanese Empire. (4) Explain why the Japanese farms are so small and so carefully cultivated. (5) What industries occupy the Japanese? (6) On an outline map locate the chief cities of Japan and account for these locations. (7) Why are the Japanese called the "Yankees of the East"? (8) What transportation facilities are provided between Japan and the United States? (9) What would a freighter leaving Seattle carry to Nagasaki? What would she bring on her return trip? (10) Describe the shortest route from Chicago to Yokohama. (11) How does Japan resemble Great Britain? (12) Where does Japan find markets for her products? Describe her commercial relations with the United States. (13) How is Japan governed?

(14) What conditions found in China indicate a great future for the country? (15) Why should the majority of the Chinese people be unaware of any change in the government? (16) Why do we see no merchant vessels flying the Chinese flag? (17) Why are certain parts of the country more thickly settled than others? (18) Why is China a great silk-raising country? (19) Why are men used for plowing and porterage in China, but not in the United States? (20) What cities have the largest trade? (21) State two differences between the Chinese and the Japanese. (22) Why should the United States buy $4,000,000 worth of raw wool from China every year? (23) In 1905 the United States sold China $30,000,000 worth of cotton cloth, while last year we sold her only $5,000,000 worth. The Japanese won this Chinese trade. Why should they be able to do this?

India

This British dependency is the central peninsula of southern Asia and corresponds in latitude with that region of North America extending from New York City to Venezuela. The great plain extends along the courses of the Indus, the Ganges, and the Brahmaputra rivers. North of it are the Himalayas, and south of it a great plateau region, filling most of the peninsula. On the east the plain extends northeast into Assam, and it forms southward the delta of the Ganges. On the west it reaches north over the delta of the Indus in the Punjab, and south to the mouth of the Indus. The temperature is tropical, modified by elevation. The summer monsoons sweep up the Ganges valley, bringing a rainfall amounting to 50 or 60 feet a year, the heaviest in the world. More rain sometimes falls in one day here than in the northeastern United States in a whole year.

Resources and Industries. — Two thirds of the people produce the great crops of rice, wheat, millet, beans, and cotton. Cattle are the most numerous domestic animals and are used only for milk and draft, since the eating of flesh is forbidden by the religion of the people. There are some valuable coal fields in the north of India, and graphite is the great mineral product of Ceylon. Tea grown in Assam and in the fields of Ceylon is an important export.

FIG. 135. A section of Bombay, India.

Fine cotton goods, sacking, and cordage made from jute are the largest factory products. But, as in China, nearly all the manufactures are in the nature of hand crafts. Rugs, carpets, and shawls are woven, and ivory and wood carvings are done.

Transportation, Cities, and Commerce. — India, under British direction, is a remarkable example of industrial and commercial development. Thirty thousand miles of railroad, more than that of all other Asiatic countries combined, have been built. Excellent communication is afforded by the large rivers, canals, and about 200,000 miles of improved wagon roads. By this means the prov-

inces of the interior are able to dispose of their products at the coast.

Calcutta, near the mouth of the Ganges, is the leading commercial and financial center. Bombay is the port for cotton and has both cotton and flour mills. The opening of the Suez canal placed this city on one of the great shipping routes of the world. Karachi and Madras are important cities in the foreign trade of India. Burma lies to the east and is a part of the Indo-Chinese peninsula. Its chief city is Rangoon, a rice port.

About three quarters of India's trade is with Great Britain; China and Germany have the next largest share. India sells cotton, wheat, skins, rice, opium, and minor manufactured articles, such as burlaps, rugs, shawls, carpets, and carved ivory. She buys petroleum, machinery, and manufactured goods.

Government. — India is a British dependency. The government is administered by a viceroy and subordinate officials at Delhi. There are nine provinces under governors, and these are further divided into districts under the charge of an executive officer.

REVIEW QUESTIONS. — (1) What is the importance of the Himalayas to India? (2) Why are most of the people engaged in agriculture? (3) What are the staple food products? (4) Where would you expect to find the population most dense? (5) Compare the location of Calcutta with that of New Orleans. (6) Make a list of the exports and imports. (7) Of what advantage to England is the possession of India? (8) How would Ceylon tea reach New York City? San Francisco? (9) Give in detail the shortest route from New York to Bombay. (10) Mention in order the waters that would be traversed by a steamer in going from Liverpool to Colombo, Ceylon. Mention two articles that would probably be part of her cargo.

Persia

This is a very backward country. About one third is a desert, but the lowlands are productive. Russia has great influence over it in the north and Great Britain in the south. Of the $70,000,000 worth of foreign trade, 60 per cent is controlled by Russia and much of the remainder by Great Britain. Persia sells cotton, tobacco, wool, silk, rugs, and carpets, buying petroleum, tea, and beet sugar, largely from Russia. The American trade amounts to only $2,000,000 a year.

Indo-China and the East Indies

The Indo-China peninsula includes lower Burma, the French dependencies in this part of Asia, the kingdom of Siam, and the Malay peninsula. Siam, between Burma and the French possessions, has Bangkok as its capital. Rice and teakwood are the important exports. The Malay peninsula contains various protected states and British settlements. The most special product is tin, spices and gums following in importance. Singapore, near the south end of the peninsula, has developed greatly. It contains the largest tin-smelting works in the world, shipping 25,000 tons annually to the United States. All ships going east and west must pass it, and as an important coaling station it is to be associated with Hongkong, Aden, Malta, and Gibraltar in their relation to the British Empire.

Dutch Rule. — The largest commercial development among the islands of the entire East Indian group has taken place under Dutch rule, particularly in Java. This island with 30 million people is rich in every tropical product, and these, shipped to the Netherlands and thence distributed to other lands, make up the greater part of Dutch foreign trade.

The capital of the Dutch possessions in the east is Batavia. It is the chief shipping point of the islands, and its trade may be compared with that of Singapore. The city has many beautiful, shaded streets traversed by canals and is fairly embowered in luxuriant vegetation of every sort. Samarang and Surabaya are the ports next in importance. The chief seaports of Sumatra are Padang and Palembang. About four fifths of the total exports go to the Netherlands, from which country the islands receive the greatest part of their imports. There is a considerable trade with the United Kingdom, the staple products of the islands being exchanged for British cloths, machinery, iron work, and coal. The United States imports coffee, tobacco, and spices, and sells to the islands small amounts of iron and steel goods, kerosene, cars, and machinery.

The northern part of Borneo belongs to Great Britain. Here are extensive plantations cultivating tobacco and rubber. The other products of this part of the island are sago, rice, gums, coffee, fruits, and spices. Numerous minerals also are found. Trade is carried on chiefly through Singapore and Hongkong.

Turkey

As a result of the war, Turkish territory in Europe was reduced to a small area between the Black sea and the Sea of Marmora. This was made international territory and all ships are free to use the famous straits. Constantinople, the capital, and Adrianople are the chief centers. The former has a splendid harbor and railroad connection

FIG. 135a. The busy water front at Smyrna in Asiatic Turkey.

with central Europe. Turkey still has an empire in Asia as large as Texas, New Mexico, Arizona, and California, with a population of twenty millions. Smyrna is the chief port of Asia Minor. Trebizond is the Black sea port. Dried fruit, barley, tobacco, rugs, carpets, and wool are exported and coffee, wheat, and oils imported. The trade is over $300,000,000 annually. The country is now a limited monarchy.

REVIEW QUESTIONS. — (1) Why does Persia receive so little rain? (2) For what products is Persia best known in the United States? (3) Why do Russia and Great Britain have the bulk of the Persian trade? (4) Name the chief exports and imports of the country. (5) On an outline map write the land and water boundaries of Indo-China. (6) To what country do the Straits settlements belong? (7) What great highway does Singapore control? (8) Name three great ocean gateways in Europe and Asia controlled by Great Britain. (9) What articles of trade does Singapore receive and distribute? (10) What can you say about the trade relations between these countries and the United States?

CHAPTER XXII

TRADE RELATIONS OF AFRICA AND AUSTRALIA

Africa is unique among the continents in that among all her millions of people not one community has yet been found equal to the task of intelligent self-government on modern lines. Hence it is that this great domain has passed under the sway of the overlords of the world, and the flags of far-away nations float above the homes of the people from the Cape of Good Hope to Cairo, and from Sokotra to St. Louis. The states of Abyssinia, Morocco, and Liberia enjoy an independence in name only and exist only by the consent of the surrounding nations. A false step on their part would make them vassals of the powers in the north who rule intelligently. The prize in the game of dividing up Africa is the billion dollars' worth of foreign commerce which to-day flows through the African ports, and the billions more which will come as the development of the continent proceeds. In the world to-day commerce is of the utmost importance. Africa would still be the "dark continent" had not the overcrowded commercial nations of Europe sought outlets for their surplus products here, seeking to extend their trade.

Surface and Climate. — Though Africa was joined to Asia by an isthmus and separated from Europe only by a narrow sea, the stretch of the Sahara desert across its northern portion and the rugged mountains which border the coast made it for many centuries almost inaccessible to the traders from those continents. It has almost unbroken shore lines and few harbors. For every 590 square miles of territory there is only one mile of coast line. Europe has the same amount of coast line for every 150 square miles of area. Its coastal lowlands are narrow and its broad interior is a plateau. The rivers go down by rapids and falls and soon reach the sea, putting a great check on navigation between the coast and the interior. There are few mountain ranges of great length or height to stop the winds, condense the moisture, and diversify the surface and climate. Much of the continent is too dry for a good cover of forest or crops, and much is absolute desert. It is

the most thoroughly tropical of all the continents, South Africa and some of the higher lands alone being temperate. The presence of tropical diseases is the greatest obstacle to the industrial and commercial progress of Central Africa. The character of the people, fanatic in the north, savage and ignorant in the central and southern parts, also hinders commercial development.

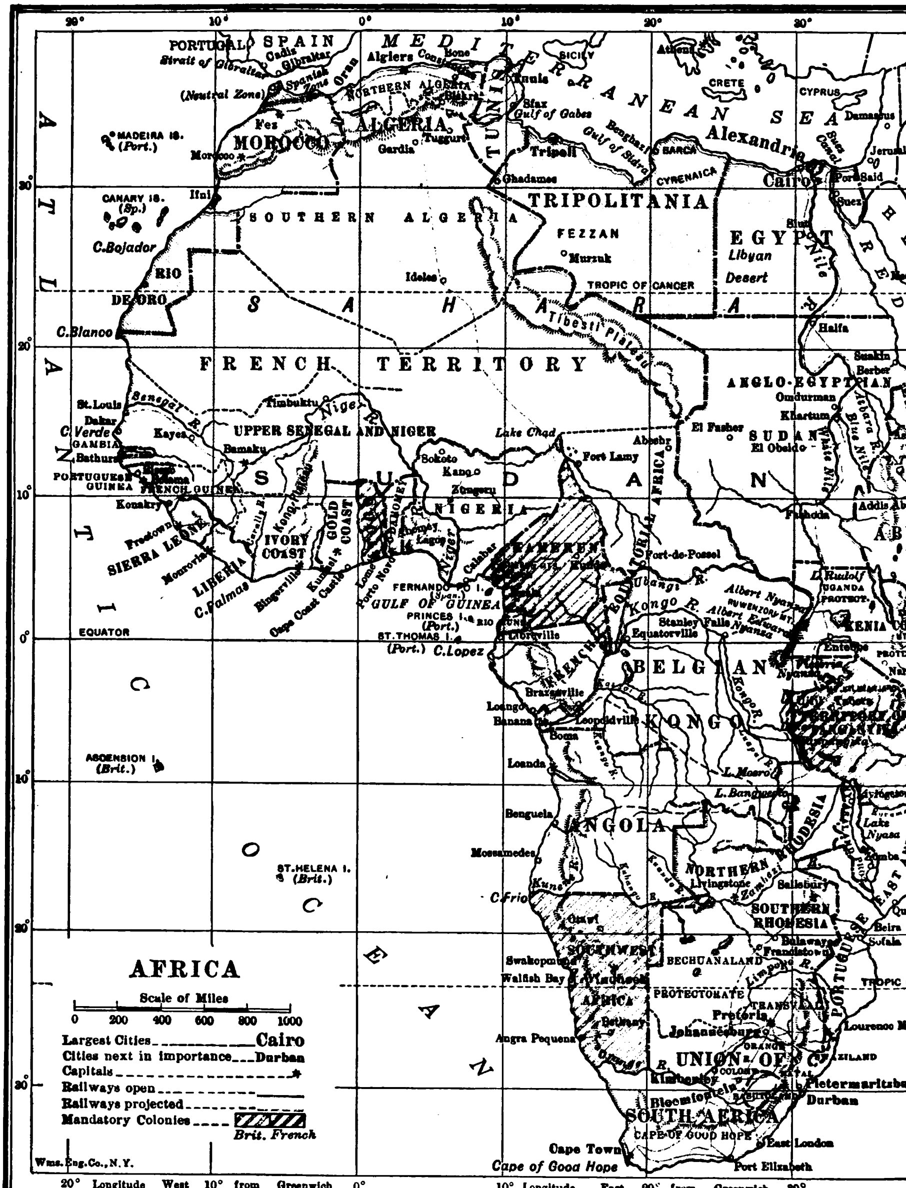
Northern Africa

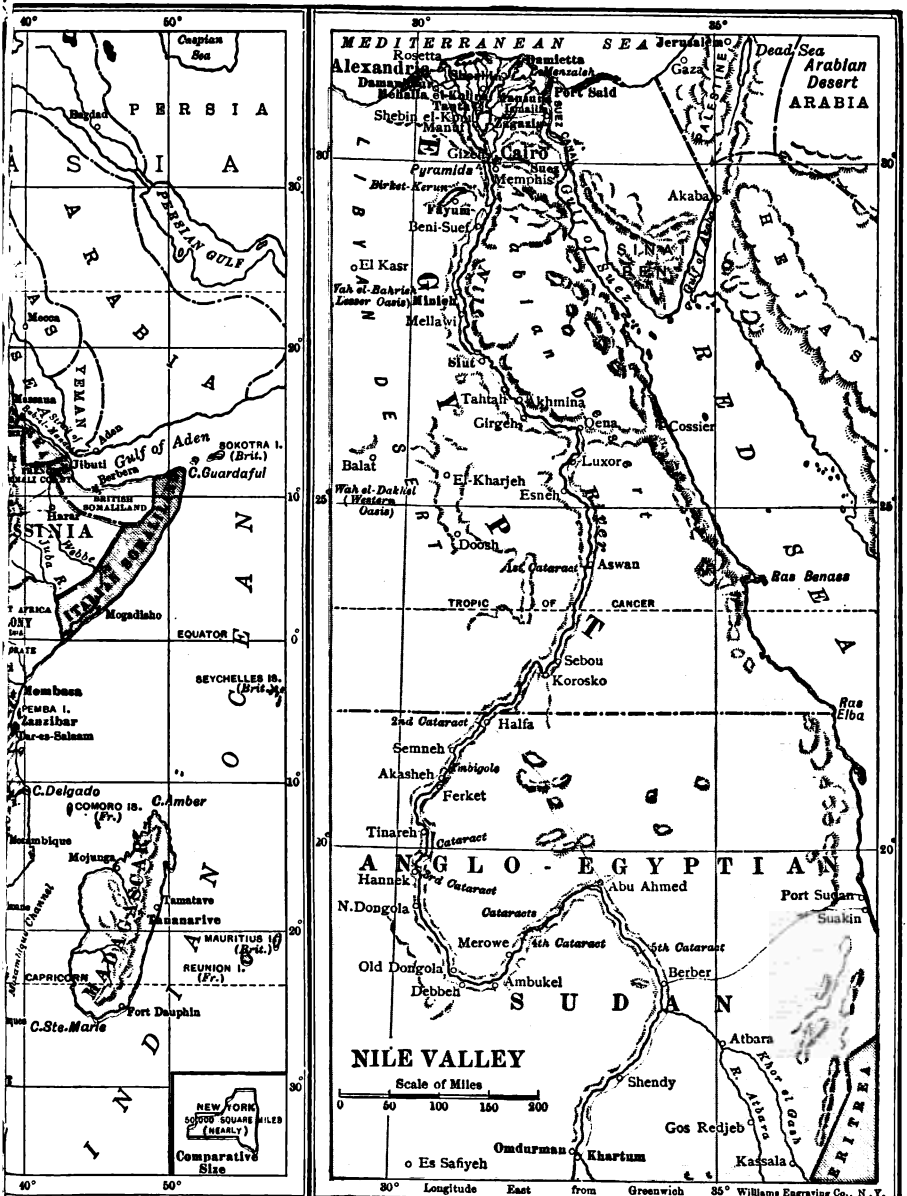
Egypt. — This country is four times the size of New York state. The chief region is the long valley of the Nile, where the river's annual

FIG. 136. A view of Algiers, northern Africa.

overflow in this rainless region permits of the cultivation of the soil. By irrigation three or four crops a year are raised on over six million acres, the river being dammed at Cairo, Aswan, and Siut, to obtain the necessary water. Cotton is the first product, grain crops, sugar, and tobacco coming next in importance. Since lumber, iron, and coal are lacking, manufactures are few.

Cities. — The capital and chief city of Egypt is Cairo. It is also the metropolis and chief commercial city of the entire continent. Its location at the head of the delta gives it the command of the trade routes leading to all parts of Egypt. Alexandria, the chief port, carries on the


AFRICA
Scale of Miles
0 200 400 600 800 1000
Largest Cities Cairo
Cities next in importance Durban
Capitals
Railways open
Railways projected
Mandatory Colonies
Brit. French
Wms. Eng. Co., N.Y.
20° Longitude West 10° from Greenwich 0°
10° Longitude East 20° from Greenwich 30°
ATLANTIC
OCEAN
MEDITERRANEAN SEA
PORTUGAL
SPAIN
Strait of Gibraltar
Cadiz
Gibraltar
Oran
Algiers
Constantine
Bone
Tunis
SICILY
Athens
CRETE
CYPRUS
Damascus
(Neutral Zone)
NORTHERN ALGERIA
Biskra
Sfax
Gulf of Gabes
Bengbazi
Gulf of Sidra
BARCA
CYRENAICA
Alexandria
Cairo
Port Said
Suez
MADEIRA IS. (Port.)
Fes
MOROCCO
Morocco
ALGERIA
Gardia
Tuggurt
Tripoli
Ghadames
CANARY IS. (Sp.)
Ifni
C.Bojador
SOUTHERN ALGERIA
TRIPOLITANIA
FEZZAN
Murzuk
EGYPT
Libyan Desert
Nile
RIO DE ORO
Ideles
TROPIC OF CANCER
SAHARA
Tibesti Plateau
C.Blanco
Halfa
FRENCH TERRITORY
Suakin
Berber
ANGLO-EGYPTIAN
Omdurman
Khartum
SUDAN
El Obeid
El Fasher
Abeshr
St.Louis
Senegal R.
Timbuktu
Niger R.
Dakar
C.Verde
Kayes
UPPER SENEGAL AND NIGER
Lake Chad
Fort Lamy
GAMBIA
Bathurst
Bamaku
Sokoto
Kano
Zungeru
PORTUGUESE GUINEA
FRENCH GUINEA
SUDAN
NIGERIA
Konakry
Freetown
SIERRA LEONE
IVORY COAST
GOLD COAST
Lagos
Calabar
Fashoda
Addis Abeba
Monrovia
LIBERIA
Bingerville
Kumasi
Fort-de-Possel
Ubangi R.
Kongo R.
C.Palmas
Cape Coast Castle
Lome
Porto Novo
FERNANDO PO I.
GULF OF GUINEA
PRINCES I.
(Port.)
RIO MUNI
L.Rudolf
UGANDA PROTECT.
Albert Nyanza
Albert Edward Nyanza
Stanley Falls
Equatorville
EQUATOR
ST.THOMAS I. (Port.)
C.Lopez
Libreville
Entebbe
BELGIAN
Brazzaville
Loango
Banana
Boma
Leopoldville
KONGO
ASCENSION I. (Brit.)
Loanda
L.Moero
L.Bangweolo
Benguela
ANGOLA
Mossamedes
Lake Nyasa
ST.HELENA I. (Brit.)
NORTHERN RHODESIA
Livingstone
Salisbury
C.Frio
SOUTHERN RHODESIA
Beira
Sofala
Bulawayo
Francistown
Swakopmund
Walfish Bay
SOUTHWEST AFRICA
BECHUANALAND PROTECTORATE
Limpopo R.
Pretoria
Johannesburg
Angra Pequena
UNION OF SOUTH AFRICA
Kimberley
Bloemfontein
Pietermaritzburg
Durban
Cape Town
Cape of Good Hope
CAPE OF GOOD HOPE
East London
Port Elizabeth


MEDITERRANEAN SEA
Alexandria
Rosetta
Damietta
Port Said
Gaza
Jerusalem
Dead Sea
Arabian Desert
ARABIA
Cairo
Giza
Pyramids
Suez
Memphis
Akaba
Fayum
Beni-Suef
El Kasr
Minieh
Mellawi
Siut
Tahtah
Girgeh
Dena
Cossier
Luxor
Balat
El-Kharjeh
Esneh
Doosh
Aswan
1st Cataract
Ras Benass
TROPIC OF CANCER
Sebou
Korosko
2nd Cataract
Halfa
Ras Elba
Semneh
Akasheh
Ferket
Tinareh
3rd Cataract
ANGLO-EGYPTIAN
Hannek
4th Cataract
Abu Ahmed
Port Sudan
Suakin
N. Dongola
Cataracts
Merowe
5th Cataract
Old Dongola
Ambukel
Berber
Debbeh
SUDAN
Atbara
NILE VALLEY
Scale of Miles
0 50 100 150 200
Shendy
Gos Redjeb
Omdurman
Khartum
Kassala
Es Safiyeh
ERITREA
30° Longitude East from Greenwich 35°
Williams Engraving Co., N.Y.
PERSIA
Caspian Sea
Baghdad
PERSIAN GULF
Mecca
YEMEN
Gulf of Aden
SOKOTRA I. (Brit.)
C. Guardafui
Jibuti
Berbera
BRITISH SOMALILAND
Harar
Mogadisho
EQUATOR
SEYCHELLES IS. (Brit.)
Mombasa
PEMBA I.
Zanzibar
Dar-es-Salaam
C. Delgado
C. Amber
COMORO IS. (Fr.)
Mozambique
Mojunga
Tamatave
Tananarive
MAURITIUS I. (Brit.)
REUNION I. (Fr.)
CAPRICORN
Fort Dauphin
C. Ste. Marie
Mozambique Channel
INDIAN OCEAN
NEW YORK
50,000 SQUARE MILES (NEARLY)
Comparative Size

larger amount of the foreign trade. Port Said and Suez, developed by the canal, are of increasing commercial importance. A railroad 1,500 miles long extends from Cairo to Khartum, an important center in

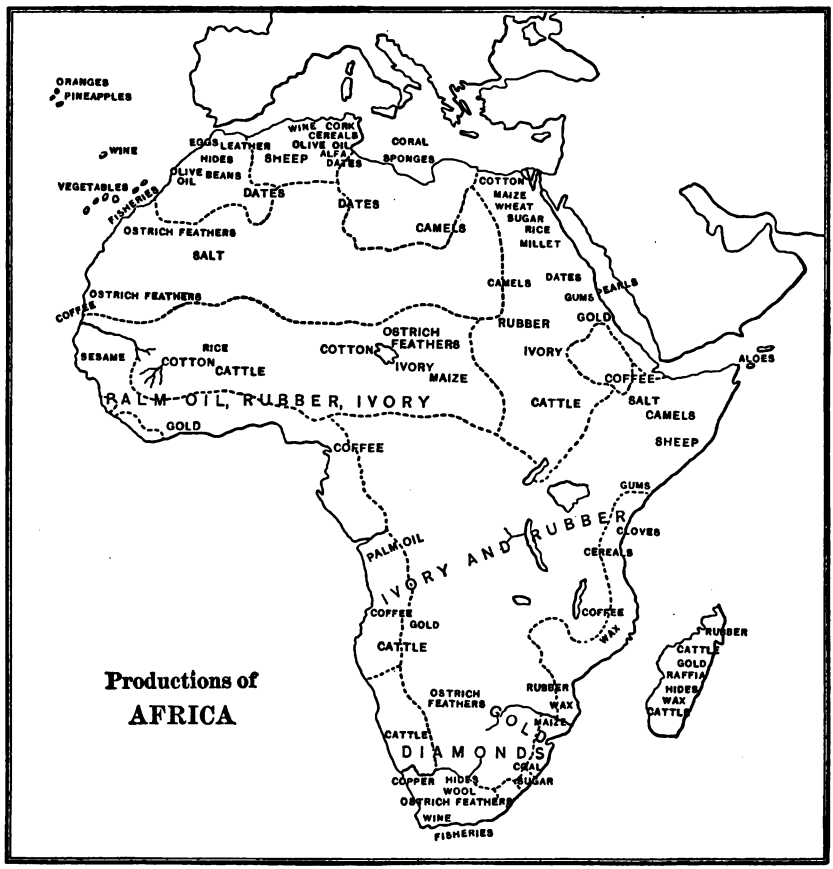


FIG. 138.

the interior, and short branches have been built from this. About 5,000 ships a year pass through the Suez canal, seven out of every ten being British.

Foreign trade is carried on mainly with Great Britain, which takes

more than half of the cotton and food supplies and furnishes about one third of the imports. These consist of cotton goods, hardware, machinery, coal, and various manufactures. The United States imports Egyptian cotton, which, because of its long fiber, is needed for making threads and laces. Our imports next in importance are sugar, gums, wool, and the skins of sheep and goats.

Formerly under the control of Turkey, Egypt was made a dependency of Great Britain in 1915.

The Mediterranean States. — Northern Africa consists of a narrow strip of fertile coast land, separated from Central Africa by the Sahara. In addition to Egypt this northern region contains the French colonies of Algeria and Tunis, the Italian province of Tripoli, and the Moorish nation of Morocco. Tripoli is little more than a desert, but the city is the terminus of a route of caravan trade across the Sahara. It handles 10,000 camel loads every year. Morocco will have commercial importance when a proper government is introduced, and the natural wealth in minerals and soils can be developed and marketed. It is another country of the future.

The French colonies are very prosperous. The region grows cereals, tropical and semi-tropical fruits, coffee, cotton, and cacao. Algeria produces wines and large quantities of cork. Caravans bring northward the interior products, such as gums, ivory, feathers, wax, gold, and skins. These come chiefly to Tripoli and are exported to France, England, and Turkey.

Algiers is the financial and trade center. Fast steamers supply the large French cities with potatoes, peas, and other fresh vegetables. The city of Morocco has a caravan trade resembling that of Tripoli. Tangier is the chief city and seaport.

Tropical Africa

This region includes five sixths of the continent. The rainfall is heavy. The forests cover one million square miles and the products of the region are chiefly coffee, cotton, grain, fruits, rubber, bamboo, ebony, tanning materials, gold, and ivory. The Anglo-Egyptian Sudan is under British control. The products find their way through Alexandria and Port Said to European countries. Abyssinia is a plateau region,

inhabited by whites, whose occupations are farming and grazing. The country imports cotton cloth and manufactured articles, sending out the characteristic African products.

British East Africa. — When Germany lost her African colonies by the peace treaty at the close of the Great War, this colony was doubled in size. This great stretch extends from the coast to the heart of the continent. Its area exceeds 800,000 square miles and its population is twelve millions, about 5,000 of whom are whites. A railroad 600 miles long connects Mombasa with Lake Victoria.

FIG. 139. African ivory in custom officers' hands in New York.

Steamers ply regularly on the lake. Several lines of European steamers call at Mombasa. The whole region is very rich, but many parts are undeveloped. More railroads from the coast to the interior are being constructed and in time the great resources will be opened up. The Zanzibar Protectorate includes two islands and a part of the mainland.

Cattle, sheep, and other domestic animals are pastured and minerals and precious stones are abundant. Coal, iron, copper, and lead are found, and among the precious stones the garnet, agate, topaz, moonstone, and tourmalin are the most abundant. The chief exports of the colony are rubber, ivory, gutta-percha, copra, and coffee. The imports are machinery, firearms, and cotton goods.

Portuguese East Africa lies south of the British colony, extending from Cape Delgado to Delagoa bay, a distance of about 1,000 miles. Its area is 300,000 square miles and its population about three million. There are few roads in this colony and its industries are little developed. The Zambesi river crosses the colony and is navigable for about 500 miles from its mouth. A railroad leads inland from Lourenço Marquez to Pretoria and Johannesburg. The chief products are rubber, sugar, wax, and cotton.

The West Coast colonies include French Senegal, Dahomey, French Kongo, British Gambia, Sierra Leone, Nigeria, Togoland, Kamerun, and Angola. These export tropical products and import European manufactures.

Belgian Kongo is one of the largest African Colonies. Though established by European nations as an independent state, the government of the country has been placed in the hands of the king of Belgium. The colony embraces the larger part of the Kongo basin and has an area of 900,000 square miles, with a population of 30 million.

The trade and navigation of the Kongo basin are free to all nations, the negroes are protected, and the slave trade has been abolished. Kongo is divided into 14 districts, each of which is ruled by a commissioner. The Governor-General resides at Boma, the capital and chief port of the colony. Transportation is chiefly by means of the Kongo river and its branches. Several lines of railway are in operation. The most important line extends to Leopoldville. The chief product and export of Kongo is rubber, valued at $10,000,000 annually. Other exports are the usual coast products and gold. Trade is chiefly with Belgium, which supplies the colony with cloth, steamboats, machinery, metal goods, and various food products.

Islands. — Madagascar, the chief African island, is a colony of France. Its area is 228,000 square miles and its population about 2,600,000. The greater part of the population belongs to the Malay race, but there are many Arabs and negroes. The island is rich in minerals, but thus far only gold has been mined. The chief occupations are cattle raising and farming. There are extensive forests which yield valuable gums, dyes, cabinet woods, and fibers. The natives weave raffia fiber into useful forms and work metals to some extent. The exports of the island are gold, raffia, cattle, and rubber. The chief im-

ports consist of cotton goods. The chief town and capital is Tananarivo, which contains many substantial buildings, both public and private.

South Africa

This region may be said to begin with the Kongo-Zambesi river divide. With the exception of the Portuguese colonies of Angola

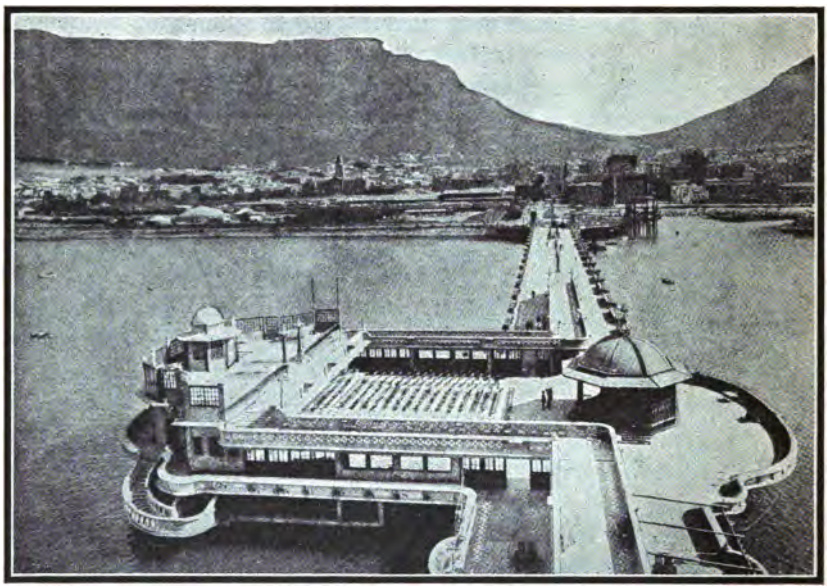


FIG. 140. A section of the harbor at Cape Town, South Africa.

on the west and Mozambique on the east, South Africa is controlled by the British. Cape of Good Hope is the most important British possession. Natal, the Orange Free State, and the Transvaal are next in importance. Except on the lower Zambesi, the coastal plain is narrow and the interior mainly an elevated plateau, called a **veldt,** arid in the central and western parts. The climate at this elevation of 4,000 feet is temperate, and the rainfall makes the eastern veldt region good grazing land.

Resources, Industries, and Commerce.—South Africa is chiefly

a mining and stock-raising country. Along the coast northeast of Cape Town the region produces grain, tobacco, and fruits. Sugar and cotton grow in Natal, and corn and tea on the inland slopes. Sheep, goats, cattle, and ostriches are raised. The chief gold mines are in the Transvaal, and the most extensive diamond field in the world is at Kimberley.

Besides mining and grazing, milling, brewing, and tanning are the main industries. Wool, feathers, hides and skins, gold, diamonds, and copper are sent to British markets chiefly. The colonies buy cotton goods, clothing, iron and steel, and machinery from Great Britain. The United States imports little from South Africa, but exports breadstuffs, tools, mining machinery, and petroleum.

Cape Town is the chief city of Cape of Good Hope. Kimberley owes its importance to the diamond mines, and Port Elizabeth to its foreign trade. Johannesburg, next to Cairo, is the largest city of the continent. The great African trunk line, the Cape-to-Cairo railroad, has branches extending to the coast towns and the fertile agricultural and mining regions.

REVIEW QUESTIONS. — (1) Compare the surface and climate of Africa and South America. (2) Which continent is the better off as regards commercial development? Why? (3) Discuss the effect of the African coast line on its commercial development. (4) Compare the Kongo, the Amazon, and the Mississippi in location, climate, products, and accessibility. (5) How do the climate and surface conditions control the products and industries of Egypt? (6) Why is Morocco a backward state? (7) What can you say about the commercial relations of the other North African states?

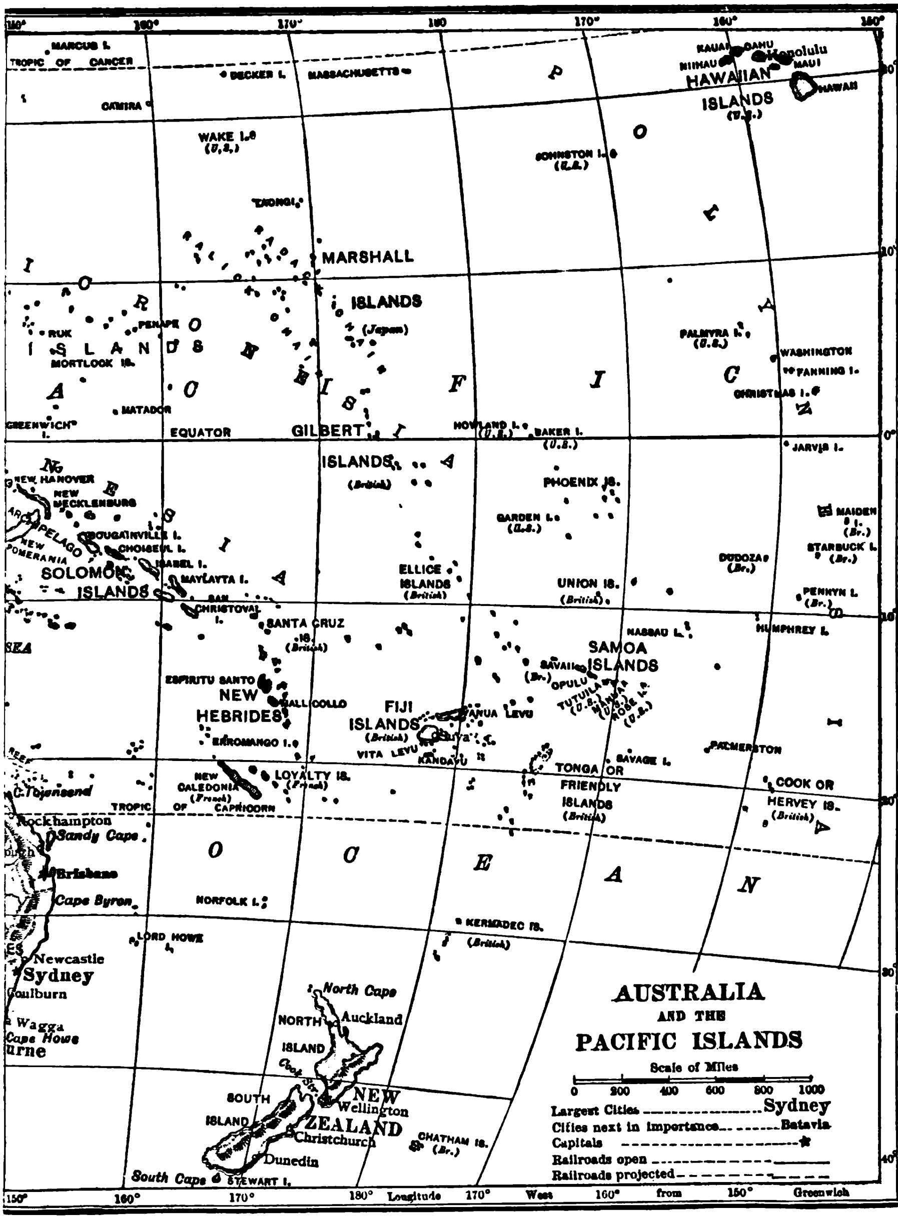
(8) What has prevented the rapid opening up of the Kongo region to European civilization and trade? (9) Why is the Niger of less importance than the Nile? (10) Tell why the great lakes of Africa are of less commercial importance than those of the United States. (11) What are the important products of tropical Africa? (12) Discuss the climate and surface of South Africa. (13) Why have British colonies developed so rapidly in South Africa? (14) To what European ports do the products of South Africa go? (15) Why were the English so desirous of building the Cape-to-Cairo railroad line? (16) What industries occupy the people of South Africa? (17) Make a list of the chief African cities, giving an important commercial fact about each. (18) Why are European nations so eager for control in Africa? (19) What nations control land there now? (20) How many independent states are there?

Australia

Surface and Climate. — This island is 2,000 miles long and 1,000 miles wide. The coast line is even and unlike that of Europe or North America. The surface resembles a shallow plate, the chief mountains

Mandalay
INDIA
ASIA
CHINA
Canton
HONGKONG
Victoria
FORMOSA
Hanoi
TONKIN
HAINAN
Hue
Bangkok
SIAM
Gulf of Siam
Gulf of Martaban
Saigon
Cape Cambodia
SOUTH CHINA SEA
Laoag
LUZON
Lingayen
Dagupan
Tarlac
PHILIPPINE ISLANDS
Manila
MINDORO
CATADUANES
SAMAR (U.S.)
LEYTE
PANAY
Iloilo
NEGROS
PALAWAN
Surigao
SULU SEA
Zamboanga
MINDANAO
SULU
Sandakan
LABUAN
Brunei
NATUNA IS.
NICOBAR IS.
ANDAMAN IS.
Str. of Malakka
MALAY PENINSULA
Singapore
SIMALU
NIAS
Padang
MENTAWE IS.
Benkulen
SUMATRA
Palembang
BANKA
BILLITON
Kuching
SARAWAK
BORNEO (Dutch)
Banjermassin
Makassar
CELEBES (Dutch)
CELEBES SEA
Menado
TULAUR IS.
MOROTAI
GILOLO
MOLUCCA
PELING
BURU
CERAM
BANDA SEA
JAVA SEA
Batavia
Samarang
Sunda Str.
Jokjokarta
Surabaya
Banyuwangi
FLORES
FLORES SEA
BALI
LOMBOK
SUMBAWA
SANDALWOOD I.
TIMOR
TIMOR SEA
TIMORLAUT
AROO IS.
ARAFURA SEA
Gulf of Papua
Torres Strait
Cape York
PELEW ISLANDS (Japan)
CAROLINE (Japan)
YAP
SOREL
NAMANUIT IS.
MARIANNE ISLANDS (Japan)
GUAM (U.S.)
KENDRICK I.
DOLORES I.
VOLCANO IS.
Bashee Chan.
Balintang Chan.
ADMIRALTY IS.
BISMARCK
INDIAN OCEAN
Palmerston
Cambridge Gulf
C. Londonderry
Kings Sound
Cape Leveque
Gulf of Carpentaria
Palmerville
Cooktown
Burketown
Croydon
Normanton
Townsville
Mackay
NORTHERN TERRITORY OF SOUTH AUSTRALIA
QUEENSLAND
Roebourne
Northwest Cape
WESTERN AUSTRALIA
GREAT VICTORIA DESERT
Carnarvon
Steep Pt.
Cue
Northampton
Geraldton
Menzies
Coolgardie
Perth
Fremantle
York
Bunbury
Albany
Cape Leeuwin
King George Sound
GREAT AUSTRALIAN BIGHT
Oodnadatta
SOUTH AUSTRALIA
Port Augusta
Petersburg
Adelaide
KANGAROO I.
Spencer Gulf
NEW SOUTH WALES
Broken Hill
Bourke
VICTORIA
Ballarat
KING I.
Bass Strait
Launceston
TASMANIA
Comparative Size
NEW YORK 50,000 SQ MILES (NEARLY)
SECTION NEAR 30TH DEGREE, SOUTH LATITUDE
Vertical Scale is 100 times Horizontal Scale
feet
5000
Sea Level
WESTERN AUSTRALIA
SOUTH AUSTRALIA
NEW SOUTH WALES
90° Longitude 100° East 110° from 120° Greenwich 130° 140°

FIG. 141.



AUSTRALIA
AND THE
PACIFIC ISLANDS
Scale of Miles
0 200 400 600 800 1000
Largest Cities Sydney
Cities next in importance Batavia
Capitals
Railroads open
Railroads projected
160° 170° 180 170° 160° 150°
150° 160° 170° 180° Longitude 170° West 160° from 150° Greenwich
30° 20° 10° 0° 10° 20° 30° 40°
P O L Y N E S I A
M I C R O N E S I A
P A C I F I C O C E A N
MARCUS I.
TROPIC OF CANCER
DECKER I.
MASSACHUSETTS
WAKE I.
(U.S.)
JOHNSTON I.
KAUAI
OAHU
NIIHAU
Honolulu
MAUI
HAWAIIAN
ISLANDS
(U.S.)
HAWAII
MARSHALL
ISLANDS
(Japan)
RUK
PENAPE
ISLANDS
MORTLOCK IS.
MATADOR
GREENWICH I.
EQUATOR
GILBERT
ISLANDS
(British)
HOWLAND I.
(U.S.)
BAKER I.
(U.S.)
PALMYRA I.
(U.S.)
WASHINGTON
FANNING I.
CHRISTMAS I.
JARVIS I.
NEW HANOVER
NEW MECKLENBURG
ARCHIPELAGO
NEW POMERANIA
BOUGAINVILLE I.
CHOISEUL I.
ISABEL I.
SOLOMON
ISLANDS
MAYLAYTA I.
SAN CHRISTOVAL I.
SANTA CRUZ IS.
(British)
PHOENIX IS.
GARDEN I.
ELLICE
ISLANDS
(British)
UNION IS.
(British)
MAIDEN I.
(Br.)
STARBUCK I.
(Br.)
DUDOZA
(Br.)
PENHYN I.
(Br.)
NASSAU I.
HUMPHREY I.
SEA
SAMOA
ISLANDS
SAVAII
(Br.)
OPULU
TUTUILA
(U.S.)
MANUA
(U.S.)
ROSE I.
(U.S.)
ESPIRITU SANTO
NEW
HEBRIDES
MALLICOLLO
ERROMANGO I.
FIJI
ISLANDS
(British)
VANUA LEVU
Suva
VITA LEVU
KANDAVU
TONGA OR
FRIENDLY
ISLANDS
(British)
SAVAGE I.
PALMERSTON
COOK OR
HERVEY IS.
(British)
NEW
CALEDONIA
(French)
LOYALTY IS.
(French)
C. Townsend
TROPIC OF CAPRICORN
Rockhampton
Sandy Cape
Brisbane
Cape Byron
NORFOLK I.
KERMADEC IS.
(British)
LORD HOWE
Newcastle
Sydney
Goulburn
Wagga
Cape Howe
North Cape
NORTH
ISLAND
Auckland
Cook Str.
SOUTH
ISLAND
NEW
ZEALAND
Wellington
Christchurch
Dunedin
CHATHAM IS.
(Br.)
South Cape
STEWART I.

bordering the coast on the east and southeast. Westward the surface descends to a vast low plateau, broken by occasional elevations in the interior and near the western coast. Moist eastern winds, rising upon the cool uplands, give abundant rains, on the eastern coast. Before reaching the interior, however, all the moisture is gone and that section is left dry. The western and southwestern coasts receive rain brought by the westerly winds, which reach their highest northern limit during the winter. Most of the continent has no drainage that reaches the sea except for the many short rivers on the east slope of the mountains and in the waters of the Darling and Murray rivers, which enter the sea on the south.

Resources and Industries. — Wheat occupies one half of the cultivated lands. Oats, maize, and sugar are also raised. Vine growing and wine making have grown to considerable proportions. Cotton, rice, and tropical fruit growing may also become large industries. Australia has large interests in sheep and cattle, and still keeps her rank as the first wool-growing country in the world, over 88 million sheep being at grass. Ten million cattle are found on the ranches.

Many cattle and sheep are slaughtered, and refrigerating plants are provided for freezing meat, which is sent in steamers provided with cold-storage chambers to the countries of Europe. A large quantity of butter is annually exported in the same manner. Farming flourishes on the well-watered coast lands lying between the mountains and the sea. As population increases, the grazing lands are pushed farther back and crops of wheat, cotton, sugar, and grapes are grown on the land which was formerly devoted to pasturage. In the northern part of the continent, which extends far into the tropical region, bananas, oranges, and other tropical fruits, as well as rice, coffee, and cacao, are produced. New South Wales raises the largest crops of grains and Victoria produces the most wine and raisins. In the production of grain and fruit South Australia ranks second among the Australian provinces.

The mineral wealth of Australia is very large. In gold it ranks next to Africa and the United States. Copper and silver are mined in Victoria and New South Wales. Productive coal mines are found along the eastern coast. There are rich deposits of iron which have been neglected for the precious metals, so that Australia still imports nearly all her iron and steel goods.

Commerce, Cities, and Transportation. — Although Melbourne and Sydney have a number of factories where cloths, leather, flour, lumber, sugar, and machinery are made, these articles are still among the largest imports. Other imports are tea, coffee, paper, books, chemicals, and railroad supplies. So little attention has been given to farming and manufacturing that Australia has had to depend largely on other countries for foods and manufactured goods. The United States

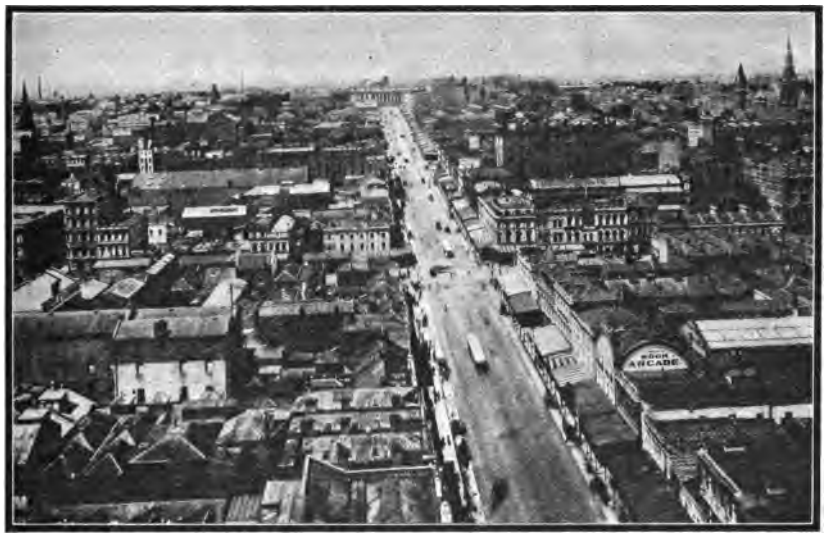


FIG. 142. A general view of Melbourne, Australia.

supplies iron and steel manufactures, leather goods, petroleum, lumber, tobacco, and cloth.

Melbourne, the chief city of Victoria, is the largest city of the commonwealth. With an excellent harbor, it carries on an extensive foreign trade. Sydney, Adelaide, and Brisbane are the other important cities in the eastern part of Australia. All the eastern states and those of South Australia are well supplied with railways. (See *Figure 141.*) The important coast towns are connected, and a number of lines extend inland from 300 to 600 miles. In all there are 18,000 miles of track and many excellent public roads and electric railways.

Government. — The Commonwealth of Australia was organized in 1901. It is composed of six colonies: Victoria, New South Wales, Queensland, Western Australia, South Australia, and Tasmania. These are known as original states. The executive is a governor-general appointed by the crown. The federal parliament is composed of a senate and a house of representatives. The members of both bodies are elected by the people. The commonwealth is independent in all matters concerning its own territory and people. The seat of government is at Canberra in New South Wales.

New Zealand. — This colony lies 1,200 miles southeast of Australia. The climate is temperate and the rain abundant. The chief industry is stock raising. Special attention is given to sheep, and wool and frozen mutton are the most valuable products and exports. Farming and mining are next in importance. Dairy products are exported to the annual value of $10,000,000; the gold output has about the same value.

Manufactures are further advanced than in Australia. Clothing, boots and shoes, articles of brass and iron, machinery, cloth, lumber, and flour supply about half the domestic trade. The exports of New Zealand consist chiefly of wool, frozen meat, gold, dairy products, and leather and hides. The imports are chiefly clothing, iron and steel goods, and various foods and beverages. Foreign trade is almost entirely in the hands of British merchants.

The chief cities are Auckland and Wellington. The colony has about 3,000 miles of railroad, which connect the coast towns with the productive centers of the interior. The railroads, telegraphs, and telephones are owned and operated by the general government, while the municipalities own the street railways and other public utilities.

Australia and New Zealand send to the United States annually about $22,000,000 worth of copper, wool, hides and skins, and meats. They buy three times this amount of iron and steel manufactures, tobacco, kerosene, cotton goods, and automobiles.

Government. — The islands are divided into nine provinces, each of which chooses delegates to a general parliament. This parliament consists of a council and a house of representatives. The executive is a governor appointed by the crown.

War Changes. — By the treaty of peace of 1919 at the close of the Great War, Germany lost all her Asiatic colonies. Australia took over the German colony in New Guinea and the islands of the Bismarck Archipelago. New Zealand secured the Samoa islands and Great Britain took over Nauru or Pleasant island near the equator. The islands north of the equator, the Marshall, Ladrone, Pelew, and Caroline groups, were allotted to Japan. The German rights to the cities of Tientsin and Hankow in China were re-ceded to the Chinese Republic. Germany ceded to Japan all her rights and privileges acquired from China as to the Shantung peninsula. Japan pledged herself to return these rights and the city of Kiauchow to China, retaining only the economic privileges granted Germany, and the right to establish a settlement at Tsing-tao, south of Kiauchow.

REVIEW QUESTIONS. — (1) Give the size and location of Australia. (2) Explain the continent's rainfall and drainage. (3) Discuss its resources and industries. (4) What is a refrigerator ship? Why are they employed in Australian and New Zealand commerce? (5) What does Australia buy and sell in the world's markets? (6) What are her trade relations and those of New Zealand with the United States? (7) Make a list of the states of the Australian Commonwealth and state the chief city of each. (8) Where would you expect to find in Australia the largest population areas? (9) Trace the route you would take in going from New York to Melbourne. (10) What would a freighter steaming from Liverpool to Sydney carry? What would it take on the return trip? (11) Discuss the governments of Australia and of New Zealand.

We have now completed a study of the greatest thing in the world — man's struggle for making a living out of the earth. This is a struggle in which nations, like the giants of fable, contend with one another in an effort to secure as large a share as possible of the $35,000,000,000 trade of the world. We have seen how location, climate, topography, resources, industries, products, transportation, characteristics of people, and their mode of government help or hinder them in this world-wide game.

INDEX

A

Africa, trade of, 254–263; Northern, 255; South, 262; Tropical, 259.
Agriculture, 16, 48, 49, 50–63, 86.
Alabama, 76.
Alaska, 134–137.
Alberta, 161.
Alexandria, 255.
Alfalfa, 66.
Algeria, 259.
Aluminum, 80.
Amazon, 176.
Animal industries, United States, 64–71.
Anthracite coal, 74–75.
Antwerp, 214.
Appalachian region, 38–39.
Argentina, 65, 186–188.
Asia, trade of, 241–253.
Aswan dam, 22.
Athens, 228.
Atlantic coastal plain, 35–38.
Australia, 254, 263, 266–268.
Austria, 238.
Automobiles, 100.

B

Balance of trade, 146–147.
Balkan countries, 238–239.
Baltimore, 118.
Bananas, 175.
Barley, 56.
Barter, 10.
Beef cattle, 64–67.
Beet sugar, 60–61.
Belgium, 213–215.
Bergen, 217.
Berlin, 206.
Bituminous coal, 74.
Bolivia, 185.
Bombay, 251.
Bordeaux, 212.
Boston, 117.
Brazil, 177–180.
British coal fields, 193, 196, 200.
British East Africa, 260.
British Empire, 192–202.
British Isles, 192–201.
Brussels, 214.
Buenos Aires, 188.
Buffalo, 121.
Bulgaria, 238.
By-products, 101.

C

Cacao, 62.
Cairo, 255.
Calais, 212.
California, 44.
Canada, 158–163.
Canadian Pacific railway, 162.
Canals, 26, 27, 112.
Cape Cod canal, 27.
Cape of Good Hope, 263.
Cape-to-Cairo railway, 28.
Cape Town, 263.
Cattle industries, 64–66.
Central America, 175.
Central plain, 39–40.
Cereals, 51–57.
Ceylon, 250.
Chicago, 120.
Chile, 188–190.

China, 246–248.
Chocolate, 62.
Cincinnati, 119.
Cities, growth of, 115–117.
Cleveland, 121.
Climate, 17; of United States, 44–47.
Coal, 74–76; anthracite, 74; bituminous, 74, 75.
Coast range, of California, 44.
Coastal plain, Atlantic, 35–38.
Cocoa, 62; cocoa butter, 62.
Cod, 71.
Coffee, 61.
Colombia, 182, 183.
Colon, 171.
Colorado plateau, 41.
Commerce, development of, 9–11, 91.
Communication, 23–24.
Copper, 79–80.
Copra, 142.
Corn, 55–56.
Costa Rica, 175.
Cotton, 57–59.
Cuba, 167–170.
Czechoslovakia, 230.

D

Dairying, 67–68, 87.
Denmark, 219.
Detroit, 121.
Division of labor, 8, 9.
Domestic commerce, 11.
Domestic trade, United States, 102.
Duluth, 121.
Duties, 152–153.

E

East Indies, 252.
Ecuador, 184.
Egypt, 255–259.
Elevators, wheat, 54.
England, 193–194.
Erie canal, 129.
Europe, trade of, 192–240.
Exports, United States, 147, 148.

F

Finland, 238.
Fisheries, 70, 160.
Fishing industries, 88.
Flax, 59.
Flour, 54, 55, 98.
Food, world's, 50.
Foreign commerce, 11.
Forests and forest products, 87–88, 160.
France, 209–213.
Free trade in United Kingdom, 200–201.
Freight steamers, 25.
Furs, 160.

G

Genoa, 221.
Germany, 202–208.
Ghent, 214.
Gold, 78–79.
Government, forms of, 30–32.
Government and commerce, 31–32.
Grains, 51–57.
Grazing, 87.
Great central plain, 39.
Great lakes, 106, 112.
Greece, 227–228.
Guam, 143.
Guatemala, 175.
Guiana, British, Dutch, French, 181–182.
Gulf coastal plain, 38.

H

Hamburg, 206.
Hamburg-American line, 155, 206.
Harbors, 16.
Havre, 212.
Hawaii, 140, 141.
Hemp, 164.
Hogs, 68–69.
Holland, 215–216.
Honduras, 175.
Hungary, 238b.

I

Imports, of United States, 151, 152.
India, 249–251.
Indo-China, 252.
Industries, of United States, 82–92.
Inland trade routes, 102–114.
Iron, 72–74.
Iron products, 96–97.
Irrigation, 22–23, 48–49.
Italy, 220–222.

J

Japan, 244–245.
Johannesburg, 263.
Jugo-Slavia, 239.

K

Kiel canal, 26, 206.
Kimberley, 263.
Kongo State, 214, 261.

L

Labor, division of, 8.
Lake traffic, 112.
Leather manufactures, 99.
Leipzig, 206.
Liverpool, 199.
London, 197–199.
Louisiana, 61.
Lumbering, 87, 98.

M

Madagascar, 261.
Man and climate, 20–21.
Manchester ship canal, 26, 197.
Manila, 143.
Manufactures, 94–101.
Manufacturing industries, 89.
Meat products, 97.
Merchant marine, United States, 154.
Mexico, 164–167.
Mineral industries, 72–80.
Mining, 88.
Mississippi, 110–111.
Moisture, 17.
Money, 10.
Montenegro, 239.
Montreal, 161, 163.
Morocco, 259.
Moscow, 235.
Mozambique, 262.
Munich, 206.

N

Naples, 221.
Netherlands, the, 215–216.
New Orleans, 119.
New South Wales, 266.
New York city, 124–133; trade, 132–133; industries of, 92, 130.
New Zealand, 268.
Nicaragua, 175.
Norway, 216–217.

O

Oats, 56.
Ocean routes, 155.
Oxides, 72.

P

Pacific ranges, 44
Panama, republic of, 170–171.
Panama canal, 26, 171–174.
Paraguay, 191.
Paris, 212.
Persia, 251.
Peru, 184, 185.
Petroleum, 76–78.
Philadelphia, 117.
Philippine islands, 141–143.
Poland, 229.
Population, 13–14.
Pork products, 68.
Porto Rico, 137–139.
Portugal, 227.
Printing industry, 99.
Production, areas of, 82.
Products, classes of, 83, 96–101.
Protective duty, 153.

Q

Quarrying, 88.

R

Railroads, 27–28, 107, 108, 109.
Rainfall, 18–19.
Revenue duty, 153.
Rice, 57.
Rio de Janeiro, 179.
River traffic, 110, 111.
Roads, 106, 107.
Rocky mountain region, 44.
Rome, 221.
Rotterdam, 215–216.
Rubber, 166, 177.
Rumania, 238.
Russia, 233–237.

S

St. Lawrence river, 163.
St. Louis, 119.
St. Paul, 54.
Salmon, 70.
San Francisco, 119.
Savage life, 7.
Scotland, 196, 200.
Sheep, 69.
Siam, 252.
Siberia, 233.
Silk, 59.
Silver, 78–79.
Soils, 17.
South America, 176–191.
Southampton, 200.
Spain, 225–226.
Standard time, 108–109.
Steamship lines, 155–156.
Steel, 96, 147.
Stock raising, 65.
Suez canal, 26.
Sugar, 60, 61.
Sweden, 216–218.
Switzerland, 223–224.

T

Tariff, the, 152–154.
Tea, 62.
Telephones, 24.
Temperature, 17.
Textile manufactures, 97.
Time, standard, 108–109.
Tobacco, 62–63; products, 100.
Toronto, 162.
Tramp steamers, 25.
Transportation, 24–29, 91–92, 102–114, 154–155.
Trans-Siberian railway, 237.
Trunk system, 28.
Turkey, 253.

U

United Kingdom, 192–202.
United States, physical features, 34–49; industries, 82–93; manufactures, 94–101.
Uruguay, 190.

V

Valparaiso, 189.
Vancouver, 162.
Venezuela, 180–181.
Vienna, 232.
Vladivostok, 236.

W

Wake island, 143.
Waste materials, 101.
Waterways, inland, 110–113.
Weather bureaus, 32.
Welland canal, 163
West coastal region, 47–48.
Western highlands, 40–41.
Wheat, the plant, 51–55; wheat countries, 52.
Winds and rainfall, 18.
Wool, 69.

APPENDIX

NORTH AMERICA

Mountains and Plateaus	Feet		Feet
Rocky Mountains	10,000	Rocky Mountain Highland	5,000
Cascade Mountains	9,000	Coast Ranges, United States	3,000
Sierra Nevada Mountains	9,000	Appalachian Mountains	2,500
Mexican Plateau	7,500		

Rivers and Basin Areas	Miles	Basin Areas
Missouri-Mississippi	4,200	1,250,000
St. Lawrence	2,100	565,000
Mackenzie	2,100	680,000
Colorado	2,000	225,000
Yukon	2,000	380,000
Nelson-Saskatchewan	1,900	470,000
Rio Grande	1,800	230,000
Columbia	1,400	260,000

Lakes	Area in Square Miles	Altitude in Feet
Superior	31,200	602
Huron	23,800	581
Michigan	22,450	581
Great Bear	14,000	391
Erie	9,960	573
Winnipeg	9,400	710
Ontario	7,240	246
Great Slave	7,100	520
Nicaragua	2,975	106
Great Salt	2,560	4,218

SOUTH AMERICA

Mountains and Plateaus	Feet		Feet
Andes Mountains	13,000	Brazilian Plateau	2,000
Bolivian Plateau	12,500	Guiana Plateau	2,000

Rivers and Basin Areas	Miles	Basin Areas
Amazon	3,400	2,320,000
Paraná-La Plata	2,500	1,150,000
São Francisco	1,800	210,000
Orinoco	1,500	425,000

Lakes	Area in Square Miles	Altitude in Feet
Titicaca	3,261	12,500

EUROPE

Mountains and Plateaus	Feet		Feet
Caucasus Mountains	10,000	Apennines Mountains	4,000
Alps Mountains	8,500	Ural Mountains	3,500
Pyrenees Mountains	8,000	Jura Mountains, France	3,000
Carpathian Mountains	5,000	Kiolen Mountains, Norway	3,000
Balkan Mountains	4,500		

Rivers and Basin Areas	Miles	Basin Areas
Volga	2,300	590,000
Danube	1,800	320,000
Dnieper	1,300	197,000
Don	1,200	160,000
Northern Dwina	1,100	134,000
Dniester	853	16,510
Rhine	810	86,600
Elbe	720	55,340
Vistula	652	73,900
Tagus	566	31,864
Oder	552	43,300
Loire	543	46,756
Rhone	504	38,000
Seine	425	30,028
Po	418	26,800

Lakes	Area in Square Miles	Altitude in Feet
Ladoga	7,000	55

ASIA

Mountains and Plateaus	Feet		Feet
Himalaya Mountains	19,000	Tibet Plateau	15,000
Karakoram Mountains, Tibet	18,500	Altai Mountain	6,300
Hindu-Kush Mountains	18,000	Iran Plateau, Persia	5,000
Kuenlun Mountains, Tibet	18,000	Mongolian Plateau	3,500
Thian Shan Mountains	18,000	Dekkan Plateau, India	2,000

Rivers and Basin Areas	Miles	Basin Areas
Yangtze	3,100	690,000
Yenisei	3,000	1,500,000
Obi	3,000	1,100,000
Lena	2,800	900,000
Hoangho	2,800	390,000
Amur	2,700	780,000
Mekong	2,600	280,000
Euphrates	2,000	490,000
Indus	1,900	360,000
Ganges	1,800	600,000
Brahmaputra	1,800	360,000

Lakes	Area in Square Miles	Altitude in Feet
Caspian Sea	169,383	86 [1]
Lake Aral	26,166	158
Baikal	13,197	1,400
Dead Sea	353	1,290 [1]

[1] Below sea level.

AFRICA

Mountains and Plateaus	Feet		Feet
Atlas Mountains	9,000	Abyssinian Highlands	6,500

Rivers and Basin Areas	Miles	Basin Areas
Nile	3,900	1,300,000
Niger	2,900	1,000,000
Kongo	2,800	1,500,000
Zambesi	1,600	580,000
Orange	1,200	270,000

Lakes	Area in Square Miles	Altitude in Feet
Victoria Nyanza	32,167	3,300
Nyassa	10,000	1,577
Tanganyika	14,000	2,670
Chad	10,400	850

AUSTRALIA

Rivers and Basin Area	Miles	Basin Areas
Darling	1,160	198,000
Murray	1,100	270,000

DIMENSIONS OF THE EARTH

	Miles
Polar diameter of the earth	7,899
Equatorial diameter of the earth	7,926
Length of the equator	24,902
Length of a meridian circle	24,857
Average length of a degree of latitude	69
Length of a degree of longitude at the equator	69.2
" " " " " 10° north or south	68
" " " " " 20° " " "	65
" " " " " 30° " " "	59
" " " " " 40° " " "	52.3
" " " " " 50° " " "	44.4
" " " " " 60° " " "	34.5
" " " " " 70° " " "	23.6
" " " " " 80° " " "	12
" " " " " 90° " " "	0

	Square Miles
Total Area of Earth's Surface	**196,907,000**
Pacific Ocean	70,000,000
Atlantic Ocean	34,000,000
Indian Ocean	28,000,000
Antarctic Ocean	4,998,000
Arctic Ocean	4,000,000
Total Sea	**140,998,000**

The Continents	Area in Square Miles	Inhabitants: Number	Inhabitants: Per Sq. Mile
North America	9,431,000	110,000,000	11.56
South America	6,856,000	35,000,000	5.10
Europe	3,842,000	400,000,000	106.54
Asia	17,056,000	900,000,000	52.76
Africa	11,512,000	170,000,000	14.76
Australia	3,456,000	8,000,000	2.31
Polar Lands	3,756,000	300,000	0.07
Total	55,909,000	1,623,300,000	29.03

AREA AND POPULATION OF THE UNITED STATES AND ITS DEPENDENCIES. CENSUS OF 1910

Total Area . . . . . **3,743,344 square miles**
Total Population **101,100,000**
The Forty-eight States **91,972,000**

States	Area in Square Miles	Population
Alabama	51,998	2,138,093
Arizona	113,956	204,354
Arkansas	53,335	1,574,449
California	158,297	2,377,549
Colorado	103,948	799,024
Connecticut	4,965	1,114,756
Delaware	2,370	202,322
District of Columbia	70	331,069
Florida	58,666	752,619
Georgia	59,265	2,609,121
Idaho	84,313	325,594
Illinois	56,665	5,638,591
Indiana	36,354	2,700,876
Iowa	56,147	2,224,771
Kansas	82,158	1,680,949
Kentucky	40,598	2,289,905
Louisiana	48,506	1,656,388
Maine	33,040	742,371
Maryland	12,327	1,295,346
Massachusetts	8,266	3,366,416
Michigan	57,980	2,810,173
Minnesota	84,682	2,075,708
Mississippi	46,865	1,797,114
Missouri	69,420	3,293,335
Montana	146,572	376,053
Nebraska	77,520	1,192,214
Nevada	110,690	81,875
New Hampshire	9,341	430,572
New Jersey	8,224	2,537,167
New Mexico	122,634	327,301
New York	49,204	9,113,614
North Carolina	52,426	2,206,287
North Dakota	70,837	577,056
Ohio	41,040	4,767,121

States	Area in Square Miles	Population
Oklahoma	70,057	1,657,155
Oregon	96,699	672,765
Pennsylvania	45,126	7,665,111
Rhode Island	1,248	542,610
South Carolina	30,989	1,515,400
South Dakota	77,615	583,888
Tennessee	42,022	2,184,789
Texas	265,896	3,896,542
Utah	84,990	373,351
Vermont	9,564	355,956
Virginia	42,627	2,061,612
Washington	69,127	1,141,990
West Virginia	24,170	1,221,119
Wisconsin	56,066	2,333,860
Wyoming	97,914	145,965
Alaska	590,884	64,356
Hawaii	6,449	191,909
Porto Rico	3,435	1,118,012
Philippine Islands (1903)	115,026	7,635,426
Guam (1900)	210	9,000
Samoa (1902)	77	3,750
Canal Zone (1909)	474	127,362
Military and naval persons abroad (1900)		91,219

CITIES OF THE UNITED STATES HAVING 100,000 OR MORE POPULATION IN 1910

City	Population	City	Population
New York, N. Y.	4,766,883	Providence, R. I.	224,326
Chicago, Ill.	2,185,283	Louisville, Ky.	223,928
Philadelphia, Pa.	1,549,008	Rochester, N. Y.	218,149
St. Louis, Mo.	687,029	St. Paul, Minn.	214,744
Boston, Mass.	670,585	Denver, Colo.	213,381
Cleveland, Ohio	560,663	Portland, Oreg.	207,214
Baltimore, Md.	558,485	Columbus, Ohio	181,548
Pittsburg, Pa.	533,905	Toledo, Ohio	168,497
Detroit, Mich.	465,766	Atlanta, Ga.	154,839
Buffalo, N. Y.	423,715	Oakland, Cal.	150,174
San Francisco, Cal.	416,912	Worcester, Mass.	145,986
Milwaukee, Wis.	373,857	Syracuse, N. Y.	137,249
Cincinnati, Ohio	364,463	New Haven, Conn.	133,605
Newark, N. J.	347,469	Birmingham, Ala.	132,685
New Orleans, La.	339,075	Memphis, Tenn.	131,105
Washington, D. C.	331,069	Scranton, Pa.	129,867
Los Angeles, Cal.	319,198	Richmond, Va.	127,628
Minneapolis, Minn.	301,408	Paterson, N. J.	125,600
Jersey City, N. J.	267,779	Omaha, Neb.	124,096
Kansas City, Mo.	248,381	Fall River, Mass.	119,295
Seattle, Wash.	237,194	Dayton, Ohio	116,577
Indianapolis, Ind.	233,650	Grand Rapids, Mich.	112,571

City	Population	City	Population
Nashville, Tenn.	110,364	Spokane, Wash.	104,402
Lowell, Mass.	106,294	Bridgeport, Conn.	102,054
Cambridge, Mass.	104,839	Albany, N. Y.	100,253

TWENTY-FIVE LARGEST CITIES IN THE WORLD

		Population			Population
1. London, England	1910	4,872,702	13. Calcutta, India	1910	1,216,514
Greater London	1910	7,537,196	14. Constantinople, Turkey		1,125,000
2. New York, U. S.	1910	4,766,883	15. Osaka, Japan	1908	1,117,151
3. Paris, France	1911	2,846,986	16. Shanghai, China		1,000,000
4. Tokyo, Japan	1908	2,186,079	17. Tientsin, China	1910	1,000,000
5. Chicago, U. S.	1910	2,185,283	18. Rio de Janeiro, Brazil	1909	1,000,000
6. Berlin, Germany	1910	2,070,695	19. Bombay, India	1910	972,892
7. Vienna, Austria-Hungary	1911	2,004,291	20. Hamburg, Germany	1910	936,000
8. Petrograd, Russia	1910	1,907,708	21. Budapest, Austria-Hungary	1910	880,371
9. Canton, China		1,600,000	22. Glasgow, Scotland	1911	784,455
10. Philadelphia, U. S.	1910	1,549,008	23. Warsaw, Russia	1909	781,179
11. Moscow, Russia	1909	1,481,200	24. Liverpool, England	1910	767,606
12. Buenos Aires, Argentina	1911	1,326,994	25. Barcelona, Spain	1911	700,000

SOME OCEAN TRADE ROUTES OF THE WORLD

From	To	Distance in Miles	Approximate Time, in Days	From	To	Distance in Miles	Approximate Time, in Days
Alexandria	London	2,275	6	Madagascar	Marseilles	6,077	25
Alexandria	Liverpool	3,027	14	Manila	Liverpool	9,575	32
Algiers	Liverpool	1,664	8	Melbourne	Southampton	11,931	45
Apia (Samoa)	San Francisco	4,200	14	Melbourne	Marseilles	9,720	35
Bahia	Southampton	4,505	16	Montevideo	Southampton	6,170	22
Bahia	Liverpool	4,430	19	Montevideo	Liverpool	6,095	25
Batavia	Marseilles	7,178	27	Montreal	Liverpool	2,850	9
Batavia	Southampton	8,330	36	New Orleans	London	4,690	14
Bombay	London	6,658	25	New Orleans	Liverpool	4,615	14
Bombay	Liverpool	6,255	27	New York	Liverpool	3,170	6
Bombay	Marseilles	4,924	16	New York	Glasgow	3,280	8
Boston	Glasgow	2,785	10	New York	Southampton	3,110	6
Boston	Liverpool	2,932	9	Odessa	Liverpool	3,335	12
Buenos Aires	Southampton	6,126	22	Pernambuco	Liverpool	3,674	15
Buenos Aires	Liverpool	6,253	25	Portland (Me.)	Liverpool	2,770	8
Calcutta	Liverpool	7,985	34	Port Said	Liverpool	4,050	14
Callao	Liverpool	9,895	40	Port Said	Marseilles	1,568	5
Cape Town	Southampton	6,010	19–24	Quebec	Liverpool	2,855	8
Christiania	Hull	558	2	Rio de Janeiro	Liverpool	5,156	19
Colon	Southampton	5,252	19	Shanghai	Southampton	10,945	43
Constantinople	Liverpool	3,015	10	Shanghai	Marseilles	9,050	36
Copenhagen	Leith, Hull	616	58 hrs.	Shanghai	Vancouver	4,300	19
Fiji Islands	Vancouver	5,235	18	Singapore	Southampton	8,638	33
Fiji Islands	Sydney	1,725	6	Stockholm	London	1,171	4
Genoa	Southampton	2,134	8	Suez	Liverpool	3,274	10
Genoa	Glasgow	2,254	10	Suez	Marseilles	1,655	6
Gibraltar	London	1,299	5	Sydney	Southampton	12,491	49
Gothenburg	London	644	3	Sydney	Marseilles	10,296	34
Halifax	Liverpool	2,415	7	Valparaiso	Liverpool	8,748	37
Havana	New Orleans	585	2	Vera Cruz	Liverpool	5,031	20
Hobart	London	11,951	41	Vladivostok	Southampton	11,748	50
Hongkong	Southampton	10,075	39	Wellington	London	13,345	46
Hongkong	Marseilles	8,180	30	Yokohama	London	11,601	52
Jamaica	Southampton	4,702	16	Zanzibar	London	6,225	40
Lisbon	Liverpool	973	4	Zanzibar	Marseilles	4,745	20
Lisbon	Southampton	855	3	Zanzibar	Hamburg	7,130	36

EXPORTS AND IMPORTS OF THE UNITED STATES

Leading Exports of the United States	Leading Countries to which Sent
Raw Cotton	Great Britain, Germany, France, Italy, Spain, Japan
Meat and Dairy Products	Great Britain, Germany, France, Belgium
Breadstuffs (grain, flour, meal)	Great Britain, Germany, France, Belgium, Holland
Iron and Steel Goods (machinery, engines, hardware)	Great Britain, Germany, Mexico, Canada
Petroleum (kerosene, crude and other oils)	Great Britain, Germany, Holland, Belgium
Timber, Lumber, Furniture, etc.	Great Britain, Germany, Canada, West Indies
Copper (bars, plates and manufactured)	Great Britain, Germany, France, Holland
Live Animals (90 per cent cattle)	Great Britain, Cuba
Tobacco (leaf and manufactured)	Great Britain, Germany, Italy, France
Leather and Manufactures of	Great Britain, Australasia, Canada
Coal and Coke	Canada, Mexico, Cuba
Agricultural Implements	France, Canada, Russia, Argentina, Germ'y, Gt. Britain
Fruits and Nuts	Great Britain, Germany, Canada, France
Cottonseed Products (oil cake, meal)	Great Britain, Germany, Netherlands, France, Belgium
Naval Stores (tar, rosin, turpentine)	Great Britain, Belgium, Germany, Netherlands
Chemicals, Drugs, Dyes	Great Britain, Mexico, Canada, Germany, Italy
Cars and Vehicles	Great Britain, Mexico, Canada, West Indies, Japan

Leading Imports of the United States	Leading Countries from which Obtained
Raw Sugar	Cuba, Java, Hawaiian Islands, Germany
Coffee	Brazil, Colombia, Venezuela, Guatemala, Mexico
Chemicals, Drugs, Dyes	Chile, Germany, Great Britain, India
Raw Fiber (hemp, flax, jute, grasses)	Mexico, Philippines, India
Manufactured Fiber (linens, cordage, bagging, etc.)	Great Britain, Germany, Belgium, France
Raw Cotton	Egypt, Peru
Manufactured Cotton Cloth (clothing, knit goods, laces, etc.)	Great Britain, Germany, Switzerland, France
Raw Silk	Japan, China, Italy, France
Manufactured Silk (cloth, ribbons, velvets, etc.)	France, Germany, Japan, Switzerland
Hides of Cattle and Goatskins	India, Argentina, Russia, France
India Rubber and Gutta-percha (raw)	Brazil, Kongo State, East Indies, African Colonies
Raw Wool and Hair of Goat, Alpaca, etc.	Australasia, Argentina, Russia, Turkey
Manufactured Wool (cloth, carpets, clothing, etc.)	Great Britain, France, Germany
Unmanufactured Iron and Steel (ore, pig iron, bars, etc.)	Great Britain, Germany, Belgium, Sweden
Manufactured Iron and Steel (cutlery, machinery, etc.)	Great Britain, Germany, Belgium
Jewelry and Precious Stones	Great Britain, Netherlands, France, Belgium
Fruits and Nuts	Italy, Central America, West Indies, Spain
Leaf Tobacco	Cuba, Sumatra, Germany, Turkey
Cigars and Cigarettes	Cuba, Egypt, Mexico
Tin (unmanufactured)	Straits Settlements, Malay States, Dutch East Indies
Wood (timber and lumber)	Canada, Central America, East Indies
Wood (furniture and pulp)	Canada, Germany, Norway
Tea	Japan, China, British India
Copper (unmanufactured)	Mexico, Canada, Great Britain
Spirits, Wines, and Malt Liquors	France, Germany, Great Britain, Spain
Furs (skins and clothing)	Great Britain, Germany, France, Belgium
Leather and Leather Goods (gloves)	Great Britain, Germany, France

HEADS OF THE GOVERNMENTS OF THE WORLD

Country	Official Head	Title	Capital
Abyssinia	Lij Ey-assu	Emperor	Adis Abeba
Afghanistan	Habibulla Khan	Ameer	Kabul
Argentina	Victorino de la Plaza	President	Buenos Aires
Austria	Karl Seitz	President	Vienna
Belgium	Albert	King	Brussels
Bokhara	Seid Mir Alim	Ameer	

Country	Official Head	Title	Capital
Bolivia	Ismael Montes	President	Sucre
Brazil	W. B. Pereira Gomez	President	Rio de Janeiro
Bulgaria	Boris	King	Sofia
Chile	Ramon Barros Luce	President	Santiago
China		President	Pekin
Colombia	José Vicente Concha	President	Bogota
Costa Rica	Alfredo Gonzalez	President	San José
Cuba	Mario G. Menocal	President	Havana
Czechoslovakia	Thomas G. Masaryk	President	Prague
Denmark	Christian X	King	Copenhagen
Dominican Republic	Ramon Baez	President	Santo Domingo
Ecuador	Leonidas Plaza	President	Quito
Egypt	Hussein Kamel	Khedive	Cairo
Finland	Gen. Mannerheim	President	Helsingfors
France	Raymond Poincaré	President	Paris
Germany	Friedrich Ebert	President	Berlin
Great Britain and Ireland	George V	King	London
Dominion of Canada			Ottawa
Commonwealth of Australia			Canberra
New Zealand			Wellington
British India			Delhi
British South Africa			Cape Town: Pretoria
Greece	Alexander	King	Athens
Guatemala	Manuel Estrada Cabrera	President	New Guatemala
Hayti	Orestes Zamor	President	Port au Prince
Hedjaz	Hussein I	Shereef	Mecca
Honduras	Dr. Bertrand	President	Tegucigalpa
Hungary		President	Budapest
India, Empire	George V	Emperor	Delhi
Italy	Victor Emmanuel III	King	Rome
Japan	Yoshihito	Emperor	Tokyo
Jugo-Slavia	Alexander	Regent	Belgrade
Khiva	Asfendiar	Khan	Khiva
Kongo Free State	Albert (King of the Belgians)	Sovereign	Boma
Liberia	D. E. Howard	President	Monrovia
Luxemburg	Charlotte	Grand Duchess	Luxemburg
Mexico	Gen. Carranza	President	Mexico
Monaco	Albert	Prince	Monaco
Morocco	Muley Yusoef	Sultan	Morocco
Nepal	Dhiraja Tribhubana Sh'sher Jang	Maharaja	Khatmandu
Netherlands	Wilhelmina	Queen	The Hague
Nicaragua	Adolfo Diaz	President	Managua
Norway	Haakon VII	King	Christiania
Oman	Seyyid Taimur bin Turkee	Sultan	Maskat
Panama	Belisario Porras	President	Panama
Paraguay	Eduardo Schaerer	President	Asuncion
Persia	Ahmed Mirza	Shah	Teheran
Peru	Dr. Roberto Legnia (Claimant)	President	Lima
Poland	Gen. Pilsudski	President	Warsaw

Country	Official Head	Title	Capital
Portugal	Canto y Castro	President	Lisbon
Rumania	Ferdinand	King	Bucharest
Russia			Petrograd
Salvador	Carlos Melendez	President	San Salvador
Siam	Vagiravudh	King	Bangkok
Spain	Alfonso XIII	King	Madrid
Sweden	Gustaf V	King	Stockholm
Switzerland	Giuseppe Motta	President	Bern
Thibet			Lhasa
Tunis	Mohamed en Nasir	Bey	Tunis
Turkey	Mohammed VI	Sultan	Constantinople
United States of America	Woodrow Wilson	President	Washington
Uruguay	Feliciano Viera	President	Montevideo
Venezuela	V. Marquez Bustillos	President	Caracas
Zanzibar	Khalifa bin Harub	Sultan	

1934